Subbasin Assessment and Total Maximum Daily Loads of the North Fork Coeur d'Alene River (17010301)

November 1, 2001

Idaho Department of Environmental Quality Coeur d'Alene Regional Office 2110 Ironwood Parkway Coeur d'Alene ID 83814

Appendix E: Letters of Comment and Letters of Response



JAN 19 2001 IDHW-DEQ Coeur d'Alone Field Office

Kootenai Environmental Alliance

P.O. Box 1598 Cocur d'Alene, ID 83816-1598

Geoff Harvey DEQ Coeur d'Alene Regional Office 2110 Ironwood Parkway, Suite 100 Coeur d'Alene, ID 83814-2648

January 18, 2001

Dear Mr. Harvey:

The following comments are in regards to the Draft sub-basin assessment and TMDL for the North Fork CDA River (17010301), dated November 15, 2000. On May 2, 2000, I submitted a 9-page letter with attachments for KEA to DEQ regarding the Draft assessment that had been released for public comment. The May 2 letter raised a number of issues, including acres of clearcut logging in a number of drainages in the sub-basin, computer models, bedload movement and impacts to fisheries, and Federal laws that relate to the management of National Forests, including the Coeur d'Alene National Forest.

The following comments are also being submitted for The Lands Council, 517 S. Division, Spokane, WA 99202-1365.

I am submitting for the record the following additional KEA comments, with data regarding the volume of water that is moving from the watersheds in the 895 sq mile drainage. The large flows of water should have been fully analyzed when discussing TMDL's for the sub-basin. The Assessment does not adequately explain the reasons why so much water volume is moving out of the watersheds each year. The Assessment does not examine how the high water volumes moving off the heavily logged watersheds and drainages and into streams and creeks will affect proposed mitigation work such as pulling some culverts and closing some roads.

The proposed TMDL's do not address fisheries issues relating to the large volume of water flowing into creeks and streams in the watersheds that are now Not Functioning Properly. There is no indication that the already damaged fisheries habitat will be improved by having new timber sales. The significant bedload movement related to the high stream power from the high water flows in a large number of watersheds within the 895 sq mile drainage will continue to degrade fisheries and fisheries habitat.

Additional comments are included regarding; fisheries impacts, the WATBAL and WATSED Models used in the Assessment, and historical data for the Shoshone Creek drainage.

A. Water volumes in the drainage:

The following data regarding cfs flows is from the U.S.G.S. documents Water Resources Data, Idaho, Volume 2, for Water Years 1995, 1996, 1997, 1998, and 1999. The following U.S.G.S data is from gauging station 4110, North Fork CDA River above Shoshone Creek, near Prichard.

The data indicates that there has been a large volume of water leaving the watersheds in the 335 sq mile drainage each of these years, and not just during February 1996. In order to indicate how much water is leaving the watersheds in this 335 sq mile drainage, I have included the following figures for a number of different cfs flows.

1,000 cfs is 448,830 gallons of water per minute or 26,929,800 gallons per hour. 5,000 cfs is 2,244,150 gpm or 134,649,000 gph. 10,000 cfs is 4,488,300 gpm or 269,298,000 gph. 15,000 cfs is 6,732,450 gpm or 403,947,000 gph. 20,000 cfs is 8,976,600 gpm or 538,596,000 gph. 25,000 cfs is 11,220,750 gpm or 673,245,000 gph 30,000 cfs is 13,464,900 gpm or 807,894,000 gph. 40,000 cfs is 17,953,200 gpm or 1,077,192,000 gph. 50,000 cfs is 22,441,500 gpm or 1,346,490,000 gph

1,548 cfs over a 24-hour period is approximately 1 billion gallons of water.
15,000 cfs over a 24-hour period is approximately 9.7 billion gallons of water.

WATER YEAR 1995:

Page 68 of the USGS document for gauging station 4110 indicates that for the month of Feb 1995, the Mean was 2,333 cfs. Feb 20 had a Daily Mean Value (dmv) of 7,890 cfs and Feb 21 had a dmv of 6,690 cfs. The figure of 7,890 cfs equals approximately 212,476,122 gallons of water per hour or 5,099,426,928 gallons of water in the 24-hour period on Feb 20.

The month of March 1995 had a Mean of 1,883 cfs. With March 20 having a dmv of 3,330 cfs, and March 21 had a dmv of 3,110 cfs. 3,330 cfs is approximately 89,676,234 gallons per hour or 2,152,229,616 gallons of water in the 24-hour period. April of 1995 had 12 days in which the dmv was greater than 1,548 cfs on each day. May of 1995 had 10 days in which the dmv for each day was also greater than 1,548 cfs.

WATER YEAR 1996:

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Page 65 of the U.S.G.S. document indicates that during the month of Nov 1995 there were 16 days in which the dmv at gauging station 4110 was over 1,000 cfs on each day. The Mean for the month was 1,273 cfs. Nov 30 had a dmv of 7,290 cfs, which is approximately 196,318,242 gallons of water per hour or 4,711,637,808 gallons in the 24-hour period for Nov 30th.

For the month of Dec 1995 there were 22 days in which the dmv for cfs flow was 1,000 cfs or greater, with the Mean for the month being 1,777 cfs. Dec 1st and 2nd both had

dmv's over 5,850 cfs, which is greater than 3.8 billion gallons of water per each 24-hour period.

For the month of Feb of 1996, the Mean was 2,485 cfs, with there being 16 days that each had a draw greater than 1,548 cfs. The Feb 9 draw of 14,700 cfs equals approximately 395,868,060 gallons per hour that moved past gauging station 4110 or approximately 9,500,833,440 gallons of water that moved during the 24-hour period on Feb 9.

For the Month of April 1996 the Mean was 2,487 cfs. April 24 had a draw 9,140 cfs. 9,140 cfs is approximately 5,907,320,928gallons of water in the 24-hour period. May of 1996 had 28 days in which the draw for each day was greater than 1,000 cfs.

WATER YEAR 1997: Page 66 of the U.S.G.S. document indicates that during May of 1997, there were several days in which the cfs flows past gauging station 4110 were greater than 5,000 cfs on each day. These days were May 10 through May 18. The dmv's ranged from 5,280 cfs up to 8,150 cfs for these days.

5,280 cfs is approximately 142,189,344 gallons per hour or 3,412,544,256 gallons for the May 10th 24-hour period.

For May 14, the 8,150 cfs is approximately 219,477,870 gallons per hour or 5,267,468,880 gallons of water for that 24-hour period.

May 15 had a dmv of 7,990 cfs; May 16 had a dmv of 8,120 cfs; and May 17 had a dmv of 7,550 cfs.

For the 24-hour period on May 15, approximately 5,164,010,448 gallons of water moved passed the gauging station.

For May 16, approximately 5,248,079,424 gallons of water moved passed the gauging station, and for May 17, approximately 4,879,679,760 gallons of water moved passed the gauging station. For the four days of May 14th through May 17th, over 20 billion gallons of water moved from the watersheds and past the gauging station.

WATER YEAR 1998:

During March of 1998, there were 2 days in which the dmv was over 4,000 cfs, the 24th and 25th. The Mean for the month was 1,238 cfs.

During April of 1998, every day had a dmv greater than 1,000 cfs and for the month the Mean was 1,673 cfs. There were 16 days in which the dmv for each day was greater than 1,548 cfs or more than 1 billion gallons of water moving each of these days.

Page 3 of the USGS document for this water year indicates there was above normal precipitation for January, and below normal conditions during the Feb-April period.

WATER YEAR 1999:

March of 1999 had a Mean for the month of 1,231 cfs with there being 2 days in which the dmv was greater 3,100 cfs on each day.

April of 1999 had a Mean for the month of 2,055 cfs, with there being 9 days in which the dmy for each day was greater than 3,000 cfs.

May of 1999 had a Mean for the month of 2,856 cfs. Every day of the month also had a dmv figure that exceeded 1,548 cfs or more than 1 billion gallons of water moving every day of the month.

Page 3 of the USGS document for this water year indicates that the months of April and May were below normal for precipitation during those months and streamflow for the water year was considered to be near to slightly above average.

It appears from the U.S.G.S. data of the past 5 Water Years that there has been a very significant amount of water that moved from the watersheds not only in the 335 sq mile drainage but also in the entire 895 sq mile North Fork drainage.

Figures from the same USGS Water Year documents, for gauging station 4130, show that for the 895 sq mile drainage there have been high cfs flow figures in years other than the flood year of 1996.

Feb 20 of 1995 had a dmv figure of 23,200 cfs and Nov 30 of 1995 had a figure of 22,800 cfs. 23,200 cfs is approximately 15 billion gallons of water that moved from the watersheds in the 895 sq mile drainage during the 24 hour period on Feb 20.

Regarding the flooding during 1996, Feb 9 of 1996 had a dmv of 46,100 cfs and April 24 and 25 of 1996 had a dmv of 19,500 cfs and 19,400 cfs respectively.

During 1997, March 21,1997 had a dmv of 14,200 cfs. April 29, 1997 had a dmv of 21,700cfs.

For the month of April 1997, the Mean was 7,218 cfs with there being 8 days in which the dmv for each day was greater than 10,000 cfs.

During May of 1997 there were 15 days that each had a dmv of more than 10,000 cfs, and the Mean for the month was 10,370 cfs. 10,000 cfs is over 6.4 billion gallons of water moving in a 24-hour period.

For 1998, March 24 and 25 of 1998 each had a dmv of that was over 9,000 cfs. The Mean for the month was 3,254 cfs. The month of April 1998 had a Mean of 3,696 cfs.

For 1999, April 26 and 27 of 1999 each had a dmv of over 10,000 cfs and the Mean for the month was 5,082 cfs.

During the month of May 1999, every day had a dmv greater than 4,000 cfs, with 15 days each having a dmv greater than 6,000 cfs. The Mean for the month was 6,255 cfs. 6,000 cfs is approximately 3.9 billion gallons of water moving in a 24-hour period.

The sub-basin Assessment does not examine the issues relating to the large flows of water that are leaving the watersheds and drainages on National Forest lands. Pulling some culverts and closing some roads will not stop the large flows of water from the watersheds that have been clearcut, while at the same time new logging would open more of the canopy with new logging units. The 17, 287 acres that were clearcut between the years 1980 and 1989 on the CDA National Forest have not recovered hydrologically. The over 11,000 acres that were clearcut cut between the years 1990 and 1999 have not recovered hydrologically. The figure of 28,000+ acres equals approximately 44.2 sq miles being clearcut during the past 20 years. No evidence has been cited in the Assessment that refutes the findings stated in "Forest Hydrology, Hydrologic Effects of

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Vegetation Manipulation" regarding logging and increases in streamflow. The USFS document was cited on page 3 of our May 2, 2000 letter.

The Assessment also does not address the issue of high water flows and culverts that would be removed. Pulling 18" or 24" culverts does not address the issues relating to the high flows of water that will continue into the streams and creeks in the watersheds after the culverts are removed. A 18" steel culvert can flow 6 cfs at full capacity; this is approximately 2,692,98 gallons of water per minute. A 24" culvert can flow 12 cfs at full capacity; this is approximately 5,385.96 gallons of water per minute. The large flows of water cited earlier that move past the two gauging stations are coming from watersheds that have been heavily logged during the past 20 years. Reducing a small amount of fine sediment by pulling some culverts continues to ignore the bigger problem of streambed instability in a large number of watersheds on National Forest lands. The streambed instability is being caused by the high and very high flows of water off of the heavily logged watersheds and the stream power contained in the high and very high flows of water. The Assessment does not contain data that would show that streambed instability is being caused by fine sediment coming from culverts or roads. There should be analysis with data in a Final Assessment, including stream power (N/m2) data that supports the contention that reducing fine sediment from culverts and roads will solve the streambed instability problems found throughout the 895 sq mile Coeur d'Alene River drainage.

B. Fisheries impacts:

Page 19 of the Assessment contains the following sentences "Excessive stream bed instability during the winter and spring months, when the eggs of fall spawning salmonids are incubating and the alevin life stage is using intergravel habitats, seriously disrupts their reproduction (Cross and Everest, 1995). Instability also causes the filling of pools with materials normally found on riffle gravel bars in a stream with a stable streambed. An additional and important result of bed instability is the loss of pool volume." Also from the bottom of page 19 "Some tributaries (Prichard, Shoshone, EF Eagle and Yellowdog) have values indicative of the loss of most of the pool volume. The values provided in Table 11 indicate a filling of pool volume, which is one result of stream channel instability."

The following sentence is found at the bottom of page 21 of the Assessment "The evidence indicates that stream bed instability may have lead to interference with trout recruitment and the loss of pools, a critical habitat to trout. As a result trout densities are low."

Page 43 of the Assessment also has the following sentences "The available data indicates that the stream channel of the North Fork and many of its tributaries has aggraded in the past few decades. The aggrading conditions have caused stream bed instability to rise to levels which permit in excess of 70% of the bed materials to move during altering discharge events (at least bank full or greater discharge)". Since DEQ policy "does not recognize flow and habitat alteration as a quantifiable and therefore allocatable parameters", page 46, the serious streambed instability problems in the North Fork drainage will continue in spite of the proposed TMDL's.

C. Computer Models:

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Our May 2 letter raised a number of issues with the use of the WATBAL computer model in the Assessment and our letter of Dec 14, 1999 also raised questions about a number of flaws in the WATSED computer model.

The WATBAL model is referred to on page 31of the Assessment. The serious flaw in the model regarding sediment routing still exists. There is a draft- working copy revision to the 1989 WATBAL Technical User Guide that has been released by the Clearwater National Forest. The draft revision is dated November 29, 2000.

The statement we cited regarding the lack of accurate stream routing and insufficient recognition of stream dynamics has not been changed in the draft revision of the Guide, page 17. The model still exhibits the same serious flaws regarding accurate stream routing and insufficient recognition of stream dynamics.

Concerning the WATSED model, the following information is taken from Technical Bulletin No. 776, January 1999, "Scale Considerations and the Detectibility of Sedimentary Cumulative Effects", (Bunte, K., and L. H. MacDonald, Colorado State University). The National Council of the Paper Industry for Air and Stream Improvement, Inc. (NCASI) published the Technical Bulletin.

On page 7 of the document there is a discussion of short-term effects on water and sediment yield. The following sentences are included in the discussion. "A variety of models have been developed for predicting sedimentary CWEs, or the relative susceptibility to sedimentary CWEs. These include WRENSS (U.S.F.S. 1980), the R1-R4 sediment model (U.S.F.S. 1981), a modified version of Universal Soil Loss Equation for forest lands (Dissmeyer and Foster 1984), BOISED (Potyondy et al. 1991), and the R1-WATSED model (U.S.F.S. 1992). These models explicitly recognize some or most of the key erosion and sediment transport processes with a drainage basin, but it is extremely difficult to incorporate our understanding of all the various processes into a model that is to be used over a wide area with very limited input data. Water and sediment yields are calculated from general assumptions, a limited number of input variables and indices, and possibly a field survey combined with remote sensing data. None of these models have any algorithm or explicit procedure for addressing the likely lags in sediment transport and delivery, although they do typically consider the recovery of different sources over time. Thus these models cannot predict longer-term sedimentary CWEs."

The next paragraph on page 7 and continuing to page 8 contains the following sentences "Model makers repeatedly emphasize the need to gather a good data set that encompasses the interplay among site conditions, hydrologic regime, and stream channel processes. In most cases the models have not been fully calibrated, much less validated. The models are generally much more able to predict management-induced increases in water yields than increases in sediment yields. These models have even more difficulty in predicting sedimentary CWEs. Much of this rather poor predictive performance can probably be attributed to the nonlinear, interacting fluvial processes associated with CWEs, even though the prediction of CWEs was often the primary rationale for developing these models".

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The Assessment assumes that the models do in fact work properly and have been continually calibrated and validated. The findings cited in the NCASI Technical Bulletin call into question the assumptions made in the Assessment regarding the models.

Appendix B of the Assessment in discussing WATSED does not address the following issues related to the model.

The model continues to lack the capability to account for rain-on-snow events, and the model does not have the capability to translate the results of these r-o-s events to bedload movement in the streams after the events take place.

The March 1997 Sandpoint Ranger District Packsaddle Supplement to the Final EIS, on page 12 contained the following statements regarding the WATSED model. "The landtype data, erosion rates, and land use variables used in the model are not refined enough to serve as accurate predictors of sediment increases. The value of the model is to allow the user to visualize the relative weightings of different land use practices and mitigation techniques in reducing relative sediment loadings. Consequently, determinations of "actual" sediment loadings based on modeled output are invalid." The next paragraph continues with the following sentences "Furthermore, the WATSED model calculates sediment yield primarily from road construction effects. Very small weightings of sediment production are attributed in the model to timber harvest. While it is true little "direct" sediment is produced by logging activities, timber harvest can increase water yield, which can cause channel bank erosion and thus indirectly increase sediment."

Page 1 of Appendix B of the Assessment indicates that both fine and coarse sediment is modeled by WATSED. The 1994 USFS document that describes the workings of WATSED does not contain specific pages that show how the model calculates both fine sediment (particle size < .6mm), larger coarse sediment from forested lands, and coarse bedload (1-25 cm in diameter and larger). The Final Assessment needs to supply the page number(s) of the WATSED document used by DEQ that indicate how the model calculates both fine and coarse sediment leaving forested lands.

There is also the issue of the model and the model spreadsheets in Appendix C of the Assessment that list the tons of course export from forestlands. The Sediment Yield spreadsheet that includes the Yellowdog watershed has a figure of 76.1 tons/yr for Conifer Forest portion of the Yellowdog watershed. The Sediment Yield spreadsheet for the Lost Creek watershed has a figure of 195.7 tons/yr for the Conifer Forest portion of the Lost Creek watershed. The 5,079-acre Yellowdog Creek watershed has an ECA of 24 percent, with 10% increased annual water yield, and a rain-on-snow risk of 1.59 (USFS 1994 Yellowdog Downey EA, page III-36).

The 14,477-acre Lost Creek watershed includes the 11,308-acre Lost Creek Roadless Area. It is difficult to understand how this watershed that includes the Roadless Area that has not been logged or roaded, can be producing over 119 more tons of coarse sediment than a watershed that has been heavily logged and roaded. The Final Assessment document should have an explanation of how the model calculated these figures for the Lost Creek watershed.

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Page 6 of Appendix B contains the following sentence "The model does not consider sediment routing." Since both Models have difficulty with sediment routing, the Final Assessment needs to indicate the method that was used to calculate how the tons of sediment that leaves forestlands in the watersheds are being routed.

The IPNF 1987 Forest Plan required that the model be validated and that the frequency of measurement should be annually. The Forest Plan also called for adjustments of the model if the predictions are off by more than 20%. The model has not been validated on an annual basis, particularly in the smaller 1st, 2nd, and 3rd order watersheds on the CDA National Forest.

The models has been in existence for over 10 years, but there is no discussion in the Assessment or Appendix B as to why there are so many damaged watersheds on National Forest lands in the drainage after more than 10 years of use with the WATSED model and WATBAL model.

E. Shoshone Creek/hydrological recovery:

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The IPNF has data for the 57.25 sq mile area from a gauging station on Shoshone Creek that indicates between Nov. 26, 1974 and March 12,1980, the maximum cfs flow recorded was 1,010 cfs. A review of IPNF data for the time period from 1980 through 1995 shows that there were a number of years that had much higher cfs flows, attachment #1.

The following sentences are from the Wallace Ranger District July 1995 Cougar Creek E.A. "Channels do not recover immediately in response to tree growth. There is a lag time between hillslope recovery time (tree growth) and channel recovery. The length of lag time is difficult to predict, but is probably on the order of several decades depending on the degree of disturbance, inherent channel stability, and size of the drainage area." (III-26 of the E.A.).

This lag time of several decades for hillslope recovery and channel recovery applies to the heavily logged Shoshone Creek watershed and other watersheds such as Yellowdog-Downey, Flat Creek, Steamboat Creek, as well as watersheds in the Little North Fork CDA River System.

Page 49 of the Assessment contains the following sentence that concerns removal of culverts and portions of roads "Over time, this operational strategy should move the impaired streams back toward stability and permit the recovery of fishery uses." We do not believe the sentence cited on page 49 is substantiated by the several decades that are needed for channel recovery in relation to recovery of fisheries and fisheries habitat in the damaged watersheds, and the high cfs flows that will continue in spite of any roadwork.

The cfs flow data clearly indicates that large volumes of water are moving in the 895 sq mile drainage. The peak flows are having the greatest impact to streambed instability, bedload movement, with the associated negative impacts to important Bull Trout and Westslope Cutthroat fisheries and fisheries habitat. The high and very high cfs flows will continue even if some culverts are removed and portions of certain roads are deep ripped or partially obliterated.

The requirements of the Clean Water Act relating to fish are not now being met on all waters of the National Forest lands, and will not be met with the proposed TMDL program.

The NFMA requirements at 36 CFR 219.19, fish and wildlife resource are not now being met on the National Forest lands in the drainage.

The 1987 IPNF Forest Plan has a number of goals, including goal #9 "Manage vertebrate wildlife habitat to maintain viable populations of all species". Goal #13 is "Manage fisheries habitat to provide a carrying capacity that will allow an increase in the Forest's trout population." Goal #18 is "Maintain high quality water to protect fisheries habitat..." Goal #19 is "Manage resource development to protect the integrity of the stream channel system." None of these Goals are being met and will not be met with the proposed TMDLs. The peak flow problems, which contribute to streambed instability and related habitat alteration to the fisheries in the drainage, will continue because the TMDLs do not fix these problems.

The high flows of water from the heavily logged National Forest watersheds within the 895 sq mile drainage are directly related to snowpack in the watersheds that have been clearcut after 1960. The rain-on-snow events that occur add to the high flows from the watersheds that have a significant amount of clearcuts.

The following sentences are also from the Cougar Creek E.A. The Cougar Creek area is a tributary to the North Fork of the CDA River. Page III-27 of the E.A. has a discussion of the rain-on-snow zone and the equivalent clearcut area (ECA) model. "The rain-on-snow zone is an elevation band (2500-4500 feet) in which both the rate of snow accumulation and melt in harvested areas is greater than in similarly unharvested areas above and below this zone. The rain-on-snow analysis method (Kappesser, 1991) assigns the greatest risk to south, southwest, and southeast facing slopes. The model does not allow for any recovery of rain-on-snow risk until 40 years after harvest, at which point the stand is considered equivalent to a partial harvest until 68 years. The rain-on-snow recovery is premised on observations that existing clearcuts 40 years or older do not seem to be accumulating and retaining as much snow as do younger clearcuts (H. Logsdon and S. Russell: 1992, Idaho Panhandle National Forests) as well as information from technical literature (Harr and Coffin, 1991). The procedure assesses the relative vulnerability, or exposure of the snowpack to direct rainfall and warm moist winds that accompany rainon-snow events. Snowpack melt gate increases with increasing vulnerability of the snow surfaces. Rapid melt of a large part of the snowpack can result in large instantaneous peak flows." The clearcuts in the drainage that are less than 40 years old likely exceed 50 sq miles, as there have been over 44 sq miles clearcut after 1980.

The statements that are cited from page III-27 of the E.A. reinforce our contention that the proposed TMDLs do not address the overriding problem, and that is the high water flows from the logged watersheds.

Significant long-term tree canopy recovery is required in the watersheds on National Forest lands in the 895 sq mile drainage if important fisheries and fisheries habitat are to be protected and restored as required by the CWA.

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Sincerely, Make Withhild Mike Mihelich

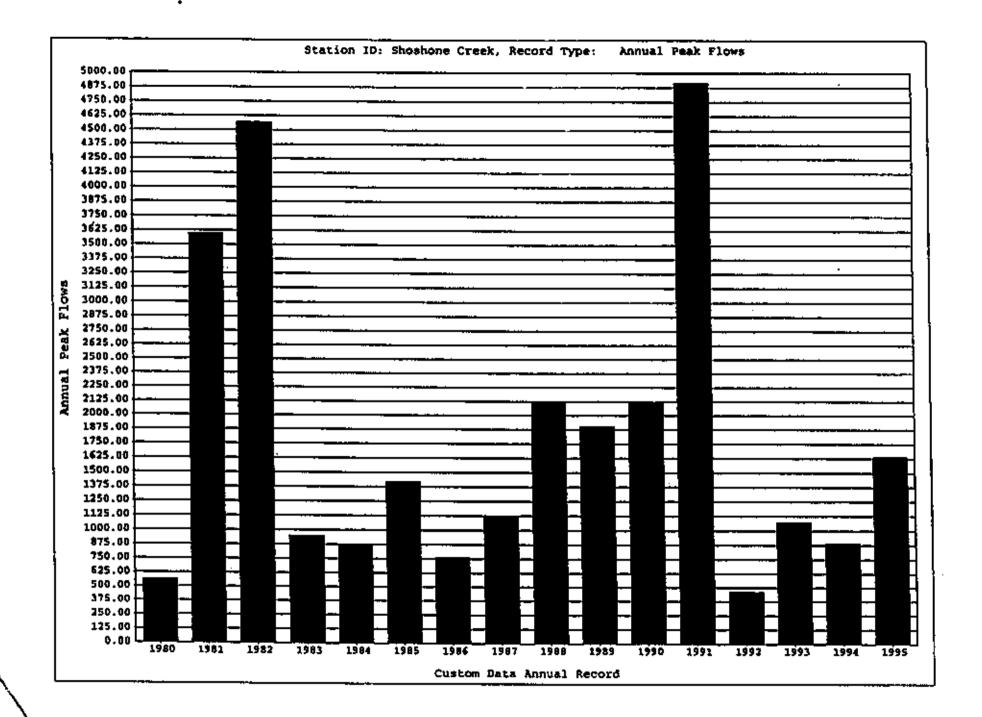
Forestry and Water Committee

Literature cited:

Coffin, B.A. and Harr, R.D. 1991. Effects of Forest Cover on Rate of Water Delivery to Soil During Rain-on-Snow. Final Report submitted to Sediment, Hydrology, and Mass Wasting Steering Committee, University of Washington.

Cc: Curry Jones, EPA Region 10

Enclosure: attachment #1



Mike Milhelich Kootenai Environmental Alliance P.O. Box 1598 Coeur d'Alene ID 83816-1598

Dear Mike:

Thank you for the comment provided by Kootenai Environmental Alliance (KEA) on the North Fork Coeur d'Alene River Sub-basin Assessment and Total Maximum Daily Loads (TMDLs) in you letter of January 19, 2001. A considerable amount of comment was received on these documents. Comments raising legal issues comprised some of this comment. Response to the comment and revision of the Sub-basin Assessment and the TMDLs has taken some time since the close of comment on January 22, 2001.

The comments made by KEA as we understood them and our responses follow. If a revision was made to the documents this is noted. A responsiveness summary of all the comment will be submitted with the assessment and TMDLs. If you wish to review the comments of others and our response and actions taken, this document should be consulted.

Comment 1: The TMDL does not address the high volume of water discharge from the North Fork Coeur d'Alene River watershed. It is not explained how the discharge affects mitigation efforts. It does not address how the large volumes of waters affect the fisheries. There is no indication of how fishery habitat will improve. These contentions are backed by USGS discharge data. This data covers the peak flow events between 1995 and 1999.

Response 1: The flood frequency of the North Fork is analyzed on page 11 of the Sub-basin Assessment. The analysis examines the peak discharge events over the past sixty-two years. It finds that the 1974 and 1996 high discharge events are the largest of record. The 1933 event is thought to be the largest flood of historic times based on photographic evidence and the Post Falls gauge. The 1974 and 1996 events are listed in their order of size. The history of logging is clear that clear cuts began in the forty's and fifty's and intensified through the 1960's and 1970's and decelerated into the 1980's. The flood history does not support the argument that clear cutting has caused greater flood discharges.

The river bed has filled with cobble materials. This phenomena which is related to erosion rates. The presence of this material has caused discharges of lower amounts to result in more over bank flooding, causing the impression that higher discharges have occurred with the proliferation of clear-cutting.

Although the flood frequency analysis does not support higher discharges due to vegetation removal (clear cut) in the main river system, this may occur on first and possibly second order tributaries in the watershed. The effect is lost by the desynchronous snowmelt, as watersheds become larger. Unfortunately no long term stream gauging has been completed on the first and second order tributaries as it has been at Prichard and Enaville.

The SBA was strengthened on page 11 to point out that peak discharges may be altered in the first and second order watersheds with the caveat that no direct data is available to support this suspicion.

Mike Milhelich May 23, 2001 Page 2.

Comment 2: Pulling culverts does not address and making roads infiltrating surfaces will not address the high discharges.

Response 2: We respectfully disagree. Any measure that causes water to infiltrate into the shallow ground water system rather than to run off will decrease discharge.

Comment 3: The assessment finds stream bed instability and pool filling, yet the DEQ policy not to address flow alteration and habitat modification will not address this stream bed instability.

Response 3: The issue that can be addressed by a TMDL is sedimentation of pools. The instability is in the opinion of the assessment caused by sediment loadings in excess of 100% above background and in some watersheds ranging up to 200% above background. Flood frequency analysis indicates that discharges are not remarkable higher or more frequent (page 11).

Comment 4: Issues concerning the technical correctness of the WATSED model are raised by the comment.

Response 4: The WATSED model was not used in the sedimentation model. The coefficients that WATSED employs for forest land sediment yield were used. The assessment incorrectly identifies these as WATSED coefficients causing this confusion. These will be correctly identified as mean coefficients for Belt geology developed from in-stream sediment measurements in northern and north central Idaho.

Comment 5: Channels do not recover immediately after hill slope recovery. This lag applies to heavily logged portions of Shoshone, Yellowdog, Flat, Steamboat and the Little North Fork. The assessment does not take into account the time required for this recovery.

Response 5: The model used in the assessment does not deal with stream channels. The model considers the yield of the pollutant of concern (sediment) to the streams of the watershed, only. We agree that impacts have occurred to stream channels and habitat, however these are not impacts judged by EPA and the state to be applicable to TMDL treatment. Certainly in any TMDL implementation plan to address excess sedimentation, the state will urge the Forest Service to adopt a holistic view to management of the landscape and stream continuum. However, the ability of the state to require habitat restoration is limited in the TMDL process.

It was clarified in the implementation plan section of the SBA that factors other than sediment should be addressed holistically in any plan.

Comment 6: The TMDL will not meet the "fishable" goal of the Clean Water Act or the NFMA.

Response 6: The TMDL is designed to address the pollutant of concern, sediment. The fishability of a stream is dependent on excess sedimentation, but also on a number of other potential constraints. A partial list includes fishing pressure, loss of habitat, loss of LOD, introduction of competitor or predator species etc. Unfortunately, a TMDL can only deal with water quality pollutants of concern and not the many other factors that make streams "fishable". The fishable goal is fishable within the constraints of a Clean Water Act that addresses but a single component the complex habitat of fish.

A discussion was placed in the SBA on the limitations of the CWA and TMDL in particular.

Comment 7: Logged watersheds have higher discharge during rain on snow events and the affect persists out to 68 years.

Mike Milhelich May 23, 2001 Page 3.

Response 7: The flood frequency analysis does not support this assertion as stated in response to comment 1. The clear cut acreage values, provided in your comment of May 2, 2000, clearly demonstrate that clear cut acreage has increased for the 68 years since 1933. Yet the 1996 high discharge event did not have as large a discharge as the 1974 high discharge event and that event is believed from photographic and Post Falls gauge data not to be as large as the 1933 event. This pattern is contrary to the thesis that logged watersheds have higher discharge during rain on snow events.

Thank you for the comments that were developed on the North Fork Coeur d'Alene River Sub-basin Assessment and TMDLs. If you have questions concerning our responses or the actions taken, please contact me at 208-769-1422.

Sincerely,

Geoffrey W. Harvey Watershed Coordinator



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January 22, 2001

Geoff Harvey
Idaho Department of Environmental Quality
2110 Ironwood Parkway
Coeur d'Alene, ID 83815

Dear Geoff:

Attached is the department's response to the draft North Fork Coeur d'Alene River TMDL. We hope you will find the comments helpful in building the final TMDL for this drainage. The document was prepared primarily by Douglass Fitting with input from other Coeur d'Alene office, as well as our Area, personnel.

If you have questions or need additional input, please give us a call. Thank you for the opportunity to comment.

Sincerely,

Dean Johnson

Area Supervisor - St. Joe Area

C: Bill Love

attachment

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JAN 22 2001

JOHN-DEO

Coeur d'Alene Field Office



Coeur d'Alene Offices

3780 Industrial Ave., S., Coeur d'Alene, ID 83815 Telephone (208) 666-8634 Fax No. (208) 769-1524

MEMORANDUM

TO:

Dean Johnson, Area Supervisor

St. Joe Area

FROM:

Douglass W. Fitting

Forest Hydrologist D.

DATE:

January 23, 2001

SUBJECT: Comments pertaining to the Draft North Fork Coeur d'Alene River TMDL

INTRODUCTION

The state of Idaho, Department of Environmental Quality is requesting comments pertaining to the draft North Fork of the Coeur d'Alene River Sub-basin Assessment and TMDL. The public comment period ends January 20, 2001, so it is imperative to submit a single response from both the Area level and appropriate staff. The comments compiled in this memo have been submitted and reviewed by Douglass Fitting (forest hydrologist), Joe DuPont (fish biologist), and Bill Love, (chief of forestry assistance), and are being sent to the St. Joe Area for their review and authorized comments. A unified response should be submitted directly to the Department of Environmental Quality by the closing date for public comments.

DISCUSSION

The Idaho Department of Lands appreciates this opportunity to comment on the draft Sub-basin Assessment and TMDL for the North Fork Coeur d'Alene River. The Idaho Department of Lands also appreciates the effort put forth by DEQ in preparing this document in a timely manner for meeting TMDL schedules. However, the Idaho Department of Lands does have some serious concerns pertaining to the methods, analyzation and conclusions presented in this report. Of particular concern are the narrative statements indicating that sediment is the only (major) pollutant of concern that is limiting fish densities in the Coeur d'Alene Basin. There are numerous references to evidence of sediment problems in the Coeur d'Alene Basin, but there is no published, scientifically accepted sediment monitoring data in this TMDL that can clearly demonstrate that sediment (bedload) by itself is the limiting factor affecting beneficial uses in the basin. The data presented in this report, (Table 12; Mean

residual pool volume and stream width), and (Table 13: Fish population per unit stream length), suggests that there is no statistically defensible relationship between the reference stream conditions and the proposed water quality limited segments conditions which can demonstrate that sediment and residual pool volume are the limiting factors negatively impacting fish densities on the sub-basin. In fact, the data presented in these tables clearly indicates that most of the supposed water quality limited segments identified in the sub-basin fall well within the range of residual pool volumes and fish densities found in the referenced streams. And the data presented in this report clearly does not support the narrative conclusions, which claim that streambed instability is reducing pool volumes, which in turn reduce fish densities.

As a land management agency we clearly understand those sediment issues associated with timber harvest activities have been and still are documented to have impacted water quality and beneficial uses. We recognize that historical logging practices such as splash dams, flumes; riparian harvest and road failures have significantly contributed to sediment loading, routing and direct channel stability problems in many water bodies.

However, we do feel that forest practices have changed substantially in the last 25 years. Historical impacts of splash dams, operating machinery in stream channels and floodplains, placer and hydraulic mining, and excessive riparian harvest are not occurring to the degree and extent of the past. Historic stream crossings were not engineered, often utilizing logs instead of culverts; fill material was not compacted, unconsolidated, filled with organic material prone to regular failures. More recently constructed stream crossings (post FPA) are engineered to address flood flows, debris passage, riparian encroachment, fish passage, fill construction and stabilization, approach design, etc., which have significantly reduced or eliminated failures. The current Forest Practices Rules and Regulations have substantially reduced and completely eliminated activities that historically have contributed to water quality problems. Many of the historical crossings that failed no longer contribute sediment; the material has been removed and is not available for annual contributions. The overall sediment load from pre-FPA, historic timber harvest practices has been greatly reduced in the last two decades.

TMDL REVIEW

2.2 Regulatory Requirements

2.2.1. Segments of Concern

In our experience, fish density surveys do not address sediment, hydrologic modification or fish habitat degradation. What they do measure is the density of fish in a defined area. What type of additional data was collected during the fish density surveys (Hunt and Bjornn, 1993; Dunnigan and Bennet) that indicate sediment, hydrologic modification, and fish habitat degradation have contributed to the decline of trout populations in the North Fork of the Coeur d'Alene River. If additional data, beyond fish surveys was collected and analyzed it should be clearly displayed in this document. Fish densities are dependent on many different factors such as the time of year the data was collected, the location and methods of data collection, fishing

MEMORANDUM North Fork Coeur d'Alene RiverTMDL 01-23-01 regulations, introduced non-native species, fluvial and adfluvial spawning recruitment, migratory corridors, floodplain connectivity and weather conditions just to name a few. Fish density surveys measure fish density. They do not measure the factors affecting the densities. The surveys may indicate a decline in trout populations, but they do not measure sediment or hydrologic modifications.

2.2.2. Beneficial Uses

The North Fork Coeur d'Alene River has legislatively designated beneficial uses of domestic water supply, agricultural water supply, salmonid spawning, cold water biota, primary contact recreation, secondary contact recreation, and special resource water (IDAPA 16.01.02.11001.q).

Thousands of people fish, swim, and boat the North Fork of the Coeur d'Alene River annually. The limited data presented in this TMDL (pool volume and fish density surveys) indicate that most, if not all of the designated beneficial uses are fully supported in the basin according to criteria outlined in the Department of Environmental Quality Water Body Assessment. The fish survey data presented on Table 13 (pages 22 and 23) clearly indicate that the beneficial use of salmonid spawning is fully supported on most of the 303(d) listed streams in the basin. All the streams that have two or more salmonid age classes meet the state's criteria for salmonid spawning, and should be removed from the 303(d) list for sediment. There is no water quality data monitoring that indicates water quality in the Coeur d'Alene Basin is exceeding the state's standards for sediment.

2.3 Water Quality Concerns and Status

2.3.1. Pollutant Sources

This section attributes excess sedimentation on the North Fork to road surfaces and beds. Although this statement has credibility it tends to ignore huge historical sediment contributions from splash dams and log drives, hydraulic and placer mining, LOD removal by riparian harvest and for flood control, hydraulic modifications from channelization and reduction in channel length and floodplain accessibility.

Historic logging practices (pre-FPA) including splash dam construction, riparian LOD removal for saw timber and splash dam corridors, road encroachment, hydraulic and placer mining, construction of highways and railroad grades, have all contributed large amounts of sediment and the routing of these sediments in the river and its tributaries in the last century. In addition, large, naturally occurring events such as the repeated wildfires around the turn of the century have contributed to sediment in the Coeur d'Alene basin. The historic quantitles of natural and anthropogenic sediment that has been introduced into the north fork since the turn of the century remains stored in the channel and is constantly being eroded and routed to downstream reaches. It has been well documented by standard bedload scour studies that sediment often takes decades, even centuries to be mobilized to downstream locations. (Andrews, E.D., 1983., Ashworth, P.J., and R.I. Ferguson, 1989., Bagnold, R.B., 1980., Beschta, R.L., 1978, 1979, 1981, 1983, 1987., Carey, W.P., 1983, 1985, 1986, 1993., Emmett, W.W., 1975, 1976, 1980, 1984, 1985, 1995., etc.).

MEMORANDUM North Fork Coeur d'Alene RiverTMDL 01-23-01 Page 3 of 10 Changes in channel morphology are not only caused by sediment, but is highly controlled by hydraulic features such as LOD, rock nickpoints, sinuosity, gradient changes, and floodplain connectivity. Sediment by itself does not necessarily translate to reduced pool volumes, other factors that need to be addressed should include an inventory of hydraulic features such as quantities of LOD that effectively form obstruction pools and temporarily store sediment. Hydraulic modifications such as channel and floodplain constrictions from road and highway construction,

22.3.2.3. Sedimentation Data

Gravel, cobble, streams, and rivers transport large quantities of bedload naturally. Stream channel characteristics such as pool volumes are transient in nature for these types of systems. Pool volume and frequencies are controlled by many factors other than sediment. In fact, most gravel cobble streams can handle impulses of accelerated sediment load delivered to the stream channel if the stream displays proper hydraulic characteristics. Features such as woody debris jams, floodplain accessibility and meander configuration all contribute to channel sediment interactions. Without addressing all the mechanisms affecting channel shape and bedload distribution we may be forced to implement plans that do not address the major limiting factors to fish densities in the North Fork Coeur d'Alene River.

2.3.2.3.1. Riffle Armor Stability Indices

Unfortunately, I cannot locate any published literature pertaining to this procedure. Without having the documentation that explains the assumptions, relationships, and process utilized in the Riffle Armor Stability Index (Kappesser, 1993), we cannot properly comment on the procedure or the results. However, when comparing the RASI number to the residual pool volume and there is little correlation between high RASI values and pool volumes (R2 = 0.0518), in fact, when comparing the data it appears that those streams with higher RASI values (more instability) have higher pool volumes. This obvious discrepancy between RASI values and pool volumes seems to contradict the whole basis in which this sediment TMDL depicts.

We have suspicions that the Riffle Armor Stability Index (Kappesser, 1993) is not a published, peer-reviewed scientific procedure. This seems to be verified by the data presented in this TMDL. This RASI data does not support or correlate with the unsubstantiated statements relating to channel bedload stability and channel characteristics (pool volumes). According to the unpublished procedure, Riffle Stability Index (Kappesser 1993), data interpretations, index numbers less than 70 represent systems in equilibrium, index numbers greater than 90 indicates systems not in equilibrium, and index numbers between 70 and 90 require interpretation by a professional hydrologist. There are many index numbers for streams in this basin that fall in the range between 70 and 90, but nowhere is their documentation from a hydrologist as to how to interpret the index numbers.

In order to clearly demonstrate this I have combined the information from Table 10, Table 12 and Table 13 in the draft TMDL into one easily understood table for simple

MEMORANDUM

North Fork Coeur d'Alene RiverTMDL

data comparison. We have completed a linear regression between the RASI scores and pool volumes, which is presented in the graph below:

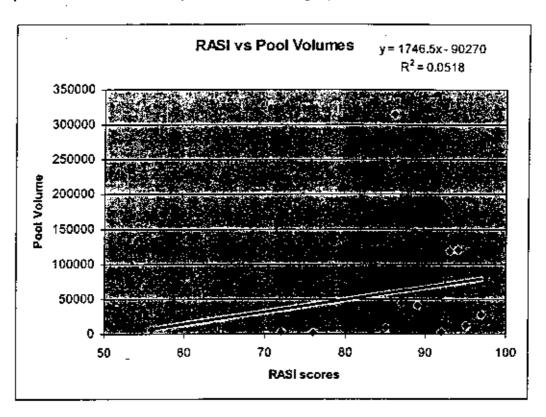


Table 1. High RASI Value = High pool volume

STREAM	HUC NUMBER	RASI MEAN	SALMONID	RESIDUAL			
	i		DENSITY	POOL			
	į		(fish/m²/hr)	VOLUME			
			, ,	(ff³/mi)			
Big Elk	1701030-13511	87		43,962			
N.F. Cd'A	1701030-13481	93	0.0034	118,907			
Little N.F. Cd'A	1701030-13485	94	0.0528	119,540			
River	,			·			
Burnt Cabin	1701030-15032	97	0.0079	28,228			
N.F. Cd'A	1701030-13482	86	0.0015	314,757			
N.F. Cd'A	1701030-	89	0.3314	41,099			
Copper	1701030-13487	95	0.0513	12,253			
EF Eagle	1701030-15617	85	0.0830	9,235			
Prichard	1701030-13500	92	0.0363	2,304			

Table 2. Low RASI value = Low pool volume

STREAM	HUC NUMBER	RASI MEAN	SALMONID DENSITY (fish/m²/hr)	RESIDUAL POOL VOLUME (ff³/mi)
Tepee Creek	1701030-13508	56	0.2360	6,534 ²
Calamity Creek	1701030-15634	76	0.0860	1,314 ²
Yellow Dog	1701030-13506	72	0.0309	3,597

2 - Value high; possibly of small database

Obviously, the data does not support the claims that bedload movement or high rates of bed instability are reducing pool volumes. In fact, the data depicts the exact opposite; the higher the RASI value or more unstable the streambed according to RASI, the higher the pool volume by several magnitudes.

There appears to be something inherently wrong with the actual RASI procedure and/or the way the data was analyzed. It is very important to display and analyze data in a proper, statistically defensible, meaningful, and scientific procedure. The data should support the conclusions in the TMDL, and it appears that this preliminary data comparison analysis directly conflicts or contradicts the overall assumptions and arguments presented in this sediment TMDL.

It is imperative to the water quality and associated beneficial uses that impacts are correctly identified and remediated in order to effectively correct problems that may be suppressing the beneficial use. The sediment data presented in this TMDL needs to be reviewed and displayed in a meaningful manner, and it needs to be interpreted correctly for TMDLs to be successful. We suggest that the TAG for the North Fork Coeur d'Alene River TMDL reconvene to discuss these major discrepancies and try to interpret and display this data for what it really depicts.

2.3.2.3.2. Residual Pool Volume

Pool volumes for any given reach of stream is controlled by many factors. Some of these factors include sediment supply, hydraulic controls (i.e., LOD, rock nickpoints, grade breaks, etc.), and is not dependent on just one of these factors, but a combination of many factors. To properly address pool volumes and frequencies, mechanisms that allow pool formation should be identified.

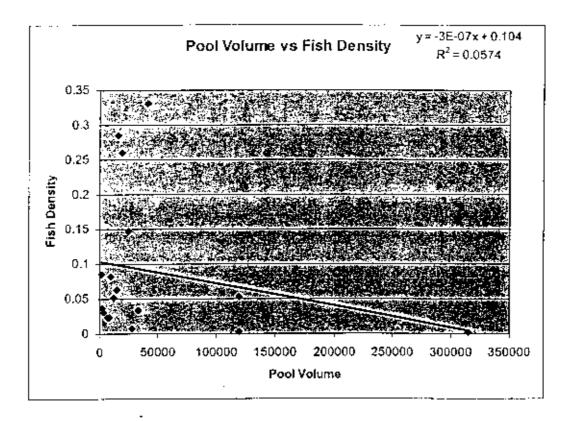
It has been well documented through numerous published scientific researches that component of stable, large, woody debris is a major control factor for sediment storage, routing, and obstruction pool formation in gravel-cobble stream channel. This research clearly identifies two to four-fold increases in inorganic bedload transport of bankful discharge. The increased rate was significantly greater than the pre-removal (LOD) rate. The increase in bedload rates was attributed to:

- Elimination of woody debris buttressing of sediment storage sites in the channel bed and banks. Sediment destabilized by debris removed was more readily transported by stream flow.
- Elimination of low energy, hydraulic environments associated with woody
 debris. These are commonly areas at the channel margins sheltered from
 the main flow by debris and backwater areas upstream of debris obstructions.
 Removal of debris increased local velocity, water surface slope and
 boundary shear stress, and enhancing sediment transport.
- 3. Delivery of sediment through bank erosion.
- An inferred increase in boundary shear stress affecting grains on the streambed, resulting from removal of the woody debris component of flow resistance.

In streams where in-channel obstructions do not dominate, alternate bars and associated pools commonly migrate downstream if slopes are less than about 0.02 (Lewin, 1976; Leopold, 1982, Liste etal, 1991). However, in-forest streams, pools, and bars are commonly stabilized by in-channel obstructions, including LWD and bedrock outcrops as well as channel bends. This sediment TMDL does not address some of the most important, scientifically published research on bedload and sediment transport. Nowhere in this sediment TMDL are these well-documented factors discussed or considered.

Decades of published research clearly demonstrate the relationship between LOD and sediment (bedload) movement and storage (Beschta, R.L., Estep, M.A., 1985, Schmidt, K.H., Hassan, M.A., Gintz, D., 1996, Smith, R.D., Sidle, R.C., Porter, P.E., Noel, J.R., 1993). Most of the lower North Fork of the Coeur d'Alene River and its associated tributaries has historically had the large riparian timber removed. The numerous, 3 to 4foot diameter cedar stumps, present next to the stream banks and riparian areas can easily identify this. Most of the tributaries that had splash dams also had stream bank and riparian timber removed for log drive corridors. The large wildfires at the turn of the century burned large riparian timber in some of the streams. Flood control projects of the 1970s physically removed this LWD component from the river and tributary streams. Even today the occasional log jam that forms in the river is physically removed due to the danger to recreationists floating the river. The North Fork Coeur d'Alene River corridor from Prichard downstream has experienced complete riparian conversion from cedar habitat types to recreation lots comprised of Kentucky bluegrass and cottonwood. There are numerous large cedar stumps littered throughout this reach, but due to conversion, will never grow back and provide long-term LOD.

This TMDL states that those streams with lower pool volumes have lower fish densities, however when we completed a standard linear regression between pool volumes and fish densities which is presented in the graph below:



One can clearly see that there is very little statistical correlation between pool volume and fish density data presented in this report. Obviously there are other factors limiting fish populations in the North Fork other than pool volumes,

Basically, the data presented in this TMDL does not properly or correctly address bedload transport process and sediment routing through gravel-cobble river systems. The effects historic sediment delivery and the current hydraulic modification, including loss of LOD, reduced frequency of bedrock outcrops due to highway and road construction, and reduction in channel length (bends or meanders) will continue to be the major contributor of bedload movement even if all upstream sources of sediment are eliminated.

2.3.2.4. Fish Population Data

Once again, the basic principles of stream channel hydraulics and bedload movement are being ignored. The filling of pools is not caused by streambed instability, but by excess historical sediment that is being transported on top of a highly armored gravel-cobble bed surface.

This armored layer which has been scientifically documented in cobble-gravel streams found in Alaska, British Columbia, Oregon, Washington, Idaho, California, Colorado, Arizona, Europe, Asia, and South America, does not mobilize material that is armoring the channel bottom unless physically disturbed (Parker et.al. 1982a, Copp 1998, wilcock 1997a: 1997b, Parker and Klingman 1982, 1987, Devries 2000). Bull Trout a fall spawning fish are rare in the North Fork, but to attribute their demise to unstable stream beds and the filling of pools has not been documented. Ignoring a century unregulated logging and mining, land conversion, decades of heavy metal impacts to

fluvial and adfluvial populations, migratory corridor impacts, stream temperature increases and the introduction of nonnative species that have all contributed to the decline of Bull Trout. Fall spawning fish such as the introduced nonnative Chinook salmon are successfully spawning and rearing in the North Fork. There is no scientifically published research that demonstrates spawning redds are susceptible to bedload scour in fact recent research, Scour in Low Gradient Gravel Bed Streams: Patterns, Processes, and implications for the Survival of Salmonid Embryos, DeVries, P.E., Dept. of Civil Eng., Univ. of Washington, PHD Dissertation, which scientifically explains the physical processes of depth of scour and how salmonids place their eggs in the gravel's well below scour depths.

Trout densities found in the reference streams ranged from . 0021 to .4285 (fish/m2/hr). Trout densities found in the Listed water quality limited streams are all within this range. If the sample site is questioned on Independence Creek, then every other sample site should have qualifying statements as well. The majority of sample locations is located next to roads or camping areas and is easily accessible to the public. The data should stand-alone; ranges of variability should be expected in any watershed when completing fish density surveys. Fish densities can be variable and depend on many factors, including the time of year, methods utilized and weather conditions.

Conclusions

Consistency

We have had the privilege of reviewing and providing comments on several Different TMDL's throughout the state. We have noticed that TMDL assessments do not evaluate the support of Beneficial Uses the same way. Some use BURP data as directed by the Waterbody Assessment Guide to determine support status. Others use part of the Water Body Assessment Guide and other observations not supported by data. And some assessments ignore the Water Body Assessment Guide altogether, and use a reference stream approach. We have found inconsistencies between TMDL's for both temperature and sediment. All TMDLS I have reviewed state that habitat alteration will not be assessed yet this TMDL is clearly using pool volumes (habitat) as a indicator for sediment. If a reference approach is used then all data including macroinvertabrates, fish densities, pool volumes, etc. should be displayed in this report and analyzed against the entire range of conditions found in the reference streams.

Data Analysis

It is imperative to the creditability of the TMDL process that data presented in the document support the narrative statements and conclusions reached in this report. The data should be subjected to standard (statistical) analysis procedures. The data presented in this report does not support the rational pertaining to unstable streams reducing pool volume or a reduced pool volume reducing fish densities. What it does demonstrate is that there is little correlation between them. The data presented in this report raises more questions than it answers. Obviously there are many other factors

MEMORANDUM North Fork Coeur d'Alene RiverTMDL 01-23-01 Page 9 of 10 suppressing fish densities that this report and data do not identify. It is critical for implementation that the correct limiting factors is identified so that monies, time and energy can be directed towards the limiting factors so that the beneficial uses are supported.

We feel that sediment impacts associated with historical actives in the basin, is still to a large degree continuing to impact portions of the North Fork of the Coeur D*Alene River. The large quantities of sediment stored in the channel will probably take decades to be mobilized out of these areas. However due to hydraulic modifications some of these reaches will probably never fully recover. There has been no data presented that depicts a hydrologic modification (sed. and water), but rather a physical (hydraulic) modification from historic sediment inputs and channel modifications.

In order to properly demonstrate sediment (bedload) loads in the basin, standard bedload sampling procedures should be implemented and monitored on an annual basis. Data collection procedures for proper bedload sampling are documented in scientific research journals and are available for references.

It is our recommendation that the TAG be reconvened to discuss the data and any discrepancies that might arise from data interpretation.

DWF:vdb

c: Winston Wiggins, Acting Director Ron Litz, AD-F&F Bill Love, C-BFA Jim Colla Joe DuPont Ed Warner File Dean Johnson Idaho Department of Lands 3780 Industrial Avenue South Coeur d'Alene ID 83815

Dear Dean:

Thank you for the comment provided by the Idaho Department of Lands (IDL) on the North Fork Coeur d'Alene River Sub-basin Assessment and Total Maximum Daily Loads (TMDLs). A considerable amount of comment was received on these documents. Comments raising legal issues comprised some of this comment. Response to the comment and revision of the Sub-basin Assessment (SBA) and the TMDLs has taken some time since the close of comment on January 22, 2001.

The comments made the Idaho Department of Lands (IDL) as we understood them and our responses follow. If a revision was made to the documents this is noted. A responsiveness summary of all the comment will be submitted with the assessment and TMDLs. If you wish to review the comments of others and our response and actions taken, this document should be consulted.

Comment 1: Fish density measurements do not address sediment impacts. What other data was collected with the fish surveys? Several factors affect fish density.

Response 1: A Sub-basin assessment (SBA) must supply all the available data concerning the watershed. The fisheries data is among this. Fisheries data gathered by IDEQ was collected separate from the BURP data on a particular stream. The University of Idaho, IDFG and USFS collected a considerable amount of the data as cited. The BURP files contain only fish tally data and a few other parameters concerning the electrofishing. Very little other data is collected with the fishery data.

Comment 2: The data indicates that the North Fork Coeur d'Alene River is fully supporting beneficial uses in accordance with WBAG. The data clearly indicates salmonid spawning is fully supported. No data indicates that sediment is impairing the beneficial uses.

Response 2: The WBAG determination is no longer DEQ policy. Prior to the adoption of WBAG2 as revised, TMDL staff is instructed to use the WBAG determinations (any segment on the 1998 list did not pass the WBAG filter) plus all other pertinent data. We respectfully disagree that no other data indicates that sediment is impairing the cold water biota. It is not reasonable to expect that correlation can be developed between sediment impact surrogates such as residual pool volume and fish density. Such a correlation would presuppose that the electrofishing was completed at that exact time when that environmental factor was limiting. This is better stated by John M. Barthalow "If you think about it, fish populations are rarely directly related to the amount of habitat present at the time of measurement. The standing crop (biomass) and usable habitat values can be expected to be correlated only when measured at the time that the habitat is limiting and for the life stage that is habitat limited. Simultaneous measurement, however, is not sufficient. For a limitation to be operative, the population must be at "carrying capacity", that is not reduced or altered in number by some non-habitat factor such as fishing pressure, a pollution-caused fish kill, stocking, etc." (from page 15 of John M. Barthalow's USGS Open-File Report 99-112 The Stream Segment and Stream Network Temperature Models: A Self-Study Course Version 2.0 March,

Dean Johnson May 23, 2001 Page 2.

2000). DEQ believes it can use a weight of evidence approach to demonstrate sediment impact. RASI, residual pool and model results all indicate sediment impacts.

Comment 3: Pollution sources such as splash dams, log drives, hydraulic and placer mining, LOD removal by riparian harvest and/or flood control and hydraulic modifications have not been addressed. These have added sediment to the stream that can take decades or centuries to route through the system (several papers cited).

Response 3: The sources listed above were mentioned but not adequately addressed. The SBA was modified to better address these influences. None of these influences are however adding the pollutant of concern, sediment, to the river at this point. The lack of LOD because of removal is affecting habitat, but the TMDL does not address habitat or for that matter the fate and transport of the pollutant of concern, sediment, in-stream. These influences will be noted more fully in the SBA, but the SBA must concentrate on sediment sources now not those of the past.

Comment 4: Rivers transport large volumes of sediment naturally. Pools are a transit feature of streams. Many features of the stream other than sediment control pool volume and frequency.

Response 4: We agree with the general statements of this comment, however, streams can receive too much sediment. This threshold is between 50 and 100% above background based on the best studies we have available. It is clear from observation of the Coeur d'Alene River at Kingston and comparison of the current situation with the historical descriptions (Russell, 1985) that the sediment loaded to the North and South Forks has increased markedly. The model used in the assessment and independently verified to be in the proper range with USGS measurements, indicates the increase is over 100% of background in most of the sub-watersheds of the North Fork. Increased sedimentation is a cause of pool filling. Increased sedimentation has occurred in the North Fork. Since sediment is a pollutant of concern for which TMDLs must be developed, the assessment can come to but one conclusion.

Comment 5: Riffle armor stability (RASI) is not a published peer review method. RASI values provided do not correlate with residual pool volume measurements provided. RASI, pool volume and fish density are compared indicating the three cannot be correlated with any strength. The data indicates an opposite trend. The data do not support the conclusions of the TMDL. The data is incorrectly interpreted, it is suggested the sediment TAG be reconvened to discuss the data.

Response 5: The RASI method is considered by DEQ to be a technique providing information about the stream bed sediments. We have no guidance on the use of a method based on peer review. The correlation between RASI, residual pool volume and fish population explain only a small percent of the variation in the North Fork data set or for that matter for the entire data set for the Coeur d'Alene Lake and River, Rathdrum-Spokane, North Fork or St Joe HUCs. As stated in the response to IDL comment 2, it can not be expect that a significant correlation could be developed between sediment impact surrogates such as RASI, residual pool volume and fish density. Such a correlation would presuppose that the electrofishing was completed at that exact time when that environmental factor was limiting (Barthalow, 2000) This is unlikely. DEQ believes it can use a weight of evidence approach to demonstrate sediment impact. The sediment TAG was formed to develop a sediment model not to decide on the weight of evidence that a listed stream is impaired. Such final decisions are reserved to IDEQ and EPA.

Comment 6: Residual pool volume is controlled by many factors. The TMDL does not address the many factors (listed) which affect pool volume in a stream. No correlation between fish density and pool volume can be found. The data presented in this TMDL does not properly or correctly address bed load transport process and sediment transport through gravel cobble river systems.

Dean Johnson May 23, 2001 Page 3.

Response 6: As stated in comments 3, 4 & 5, the TMDL addresses the pollutant of concern, sediment. Residual pool volume and fish densities correlation is addressed in the response to comment 5. The TMDL addresses only sediment sources and does not address the fate and transport of the pollutant in the stream system. Adequate models are not available in our opinion to address the fate and transport of sediment especially bed load sediment. The key to any pollutant control is to control the source not the fate and/or transport. The TMDL addresses the pollutant sources, limiting these sources to yearly loads.

The SBA further clarifies, the pollutant addressed by the TMDL and the features of the stream that are not.

Comment 7: The SBA ignores basic principles of stream channel hydraulics and bed load sediment transport. The SBA ignores a century of impacts, ignores the introduction of fish species. The comment points out that Chinook salmon spawn successfully in the North Fork during the fall and winter.

Response 7: The comment on channel hydraulics and bed load sediment is addressed in comment 6. A TMDL addresses pollutant sources, not fate and transport. The level sediment in this TMDL is addressed using the Washington Board of Forestry Guidelines as the best available knowledge. Issues such as habitat alteration and fish introduction are not issues to which TMDLs are applicable. We agree that Chinook salmon appear to spawn successfully in the lower Coeur d'Alene River. It is not known if its populations are affected by high flow events. Little is known about its relative spawning success in the Lower North Fork. The SBA was augmented to address the century of impacts.

Comment 8: Trout densities in reference streams range from 0.021 to 0.4285. Value for Independence Creek is not diminished because many sites impaired are near roads or camps. Data should be stand-alone; fish densities can be variable.

Response 8: The Independence Creek population is interpreted by DEQ to be the result of the location of the electrofished reach near the popular campground at the base of Independence Creek. We believe such interpretations to be rational. The comment ignores the general pattern of the data. Except for Beaver Creek, which has predominantly brook rather than cutthroat trout, the heavily roaded watersheds of the North Fork have fish densities an order of magnitude or two lower than all the watersheds of low road density. The comment clings to one anomalous value and ignores the clear pattern. DEQ believes the weight of evidence favors its interpretation of the fish density data.

Comment 9: The SBA uses residual pool volume as an indicator, yet it is an indicator of habitat alteration, that DEQ and EPA indicate is not applicable to TMDL treatment.

Response 9: The SBA uses residual pool volume as an indicator of the influence of the pollutant of concern, sediment. The TMDL does not attempt to allocate residual pool volume. The TMDL allocates the pollutant, sediment. The comment confuses the SBA with the TMDL allocations.

Comment 10: The data should be subjected to standard statistical analysis.

Response 10: This is an unrealistic standard because it pre-supposes that correlation is possible, when the measurements of fish density would be required at the exact time that a feature such as residual pool volume is limiting (Barthalow, 2000). DEQ uses a weight of evidence approach to identify the problem. It moves on to develop model results that demonstrate sedimentation rates well above levels expected to cause water quality degradation. The model is demonstrated from independent measurements to be in the correct range. It is doubtful that IDL manages completely based on standard statistical analysis and correlation. It is disingenuous for it to require the same of DEQ.

Comment 11: The impacts of historical sedimentation have not been fully taken into account.

Dean Johnson May 23, 2001 Page 4.

Response 11: As stated in response to IDL comment 3, historical sediment sources now have a fuller explanation in the SBA. However, the TMDL is not concerned with historic sediment sources. It is concerned with current sources that verified modeling demonstrate are well above the level expected to cause water quality problems. The TMDL addresses pollutant (sediment) sources, not history. This is the limitation of a TMDL approach.

Comment 12: Bed load monitoring should be instituted and monitored on an annual basis.

Response 12: DEQ does not have the resources to support bed load monitoring in a watershed as large as the North Fork Coeur d'Alene River. If sediment monitoring were required on all the sediment impaired streams in Idaho, it would easily bankrupt the state. The North Fork is not special in this respect. To meet the court imposed deadlines, a sediment modeling approach must be taken.

Thank you for the comments that were developed on the North Fork Coeur d'Alene River Sub-basin Assessment and TMDLs. If you have questions concerning our responses or the actions taken, please contact me at 208-769-1422.

Sincerely,

Geoffrey W. Harvey Watershed Coordinator



January 22, 2001

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Mr. Geoff Harvey
Idaho Department of Environmental Quality
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Coeur d'Alene, ID 83814

JAN 24 2001

Coeur d'Alene Field Office

16004/0104

Re: Draft Sub-basin Assessment and Total Maximum Daily Load of the North Fork Coeur d'Alene River

Dear Mr. Harvey:

The attached comments pertaining to the above referenced draft TMDL are submitted on behalf of Asarco. If you have any questions or need further information, do not hesitate to call me.

Very truly yours,

Timothy H. Butler

cc: Douglas Parker (w/encl.) Christopher Pfahl (w/encl.)

COMMENTS OF ASARCO INCORPORATED ON THE DRAFT SUB-BASIN ASSESSMENT AND TOTAL MAXIMUM DAILY LOAD OF THE NORTH FORK COEUR D'ALENE RIVER

Submitted January 20, 2001

I. SUMMARY OF COMMENTS

II. GENERAL AND SPECIFIC COMMENTS

A. Deferral or Phasing of metals TMDL

- DEQ should defer the metals TMDL until completion of the CERCLA initiated removal actions
- 2. If DEQ does not defer the metals TMDL, then it should specifically phase the metals TMDL
- 3. DEQ should defer or phase the metals TMDL to allow development and use of site-specific water quality criteria
- DEQ should defer or phase the metals TMDL to allow development of sufficient site-specific data

B. DEQ Authority

- Idaho Code § 39-3611 limits controls on point sources
- 2. The State of Idaho and Idaho DEQ are required to conduct rulemaking under the Idaho APA in order to promulgate TMDLs

C. Loading Allocation

- 1. There should be a greater emphasis that this is a phased TMDL
- The calculation of discrete discharges of metals is indecipherable and erroneous
- The waste load allocations should not decrease as creek flows increase
- Lead should be deleted from the TMDL for the East Fork of Eagle Creek
- Dissolved to Total Recoverable metals ratios should be incorporated into the metals TMDL
- Within Tributary Creek the hardness from adit and seep flows add to the loading capacity

7. Within Tributary Creek there is an inverse relationship between flow and hardness

D. Adequacy of Technical Information

- 1. The TMDL's assessment of point sources is inadequate
- Biological monitoring can be used to establish ecological goals for the Basin
- Site-specific metals criteria will result in a technically superior TMDL

E. Margin of Safety

- 1. By using the EPA developed metals criteria, DEQ already has sufficient margin of safety.
- 2. The flow tier approach provides a margin of safety not acknowledged in the TMDL.

F. Technical and Economic Feasibility

 DEQ should not impose a metals TMDL without knowing whether the source reductions will be technically or economically feasible.

G. Editorial Corrections

CONCLUSION

COMMENTS OF ASARCO INCORPORATED ON THE DRAFT SUB-BASIN ASSESSMENT AND TOTAL MAXIMUM DAILY LOAD OF THE NORTH FORK COEUR D'ALENE RIVER

Asarco Incorporated ("Asarco") appreciates the opportunity to submit comments on the proposed TMDL for cadmium, lead and zinc in the East Fork of Eagle Creek

I. SUMMARY OF COMMENTS

Throughout the following comments Asarco will refer to the Draft Sub-Basin Assessment and Total Maximum Daily Loads of the North Fork Coeur d'Alene River as the "SBA" and the metals TMDL within the SBA as the "metals TMDL." The Total Maximum Daily Load for Dissolved Cadmium, Dissolved Lead, and Dissolved Zinc in Surface Waters of the Coeur d'Alene Basin is referred to as the "SFCDR TMDL". A Draft Field Sampling and Data Report by McCulley, Frick and Gillman will be released in February 2001 and is generally referred to as "data obtained by McCulley, Frick and Gilman."

Based on Asarco's review of the draft SBA and metals TMDL, Asarco believes that the metals TMDL is premature, is based on inadequate information and needs to be deferred. Asarco notes that there is no urgency for doing the TMDL because improvements will be occurring under the existing and planned remedial activities. The risks of promulgating a final metals TMDL include:

- the use of more stringent metals standards than necessary to protect water quality,
- the assignment of inappropriate waste load allocations ("WLAs") to specific point sources,
- the implementation of the assigned WLAs by EPA in NPDES permits regardless of cost, feasibility or ultimate benefit, and in spite of DEQ's intention to impose only a "practical level of treatment,"
- the limitation to just a 5 year NPDES permit cycle to achieve the WLA based limits, and
- the additional burden of anti-backsliding requirements on those permits, where such limits, once attained, must continue even if the standards themselves are relaxed through mechanisms such as site-specific criteria.

Asarco is concerned that an excessive focus on stringent limits for point sources will detract from the ongoing remedial activities that seek to address the more significant non-point sources. Asarco is also concerned that the metals TMDL, with all of its short-

comings, could become an ARAR driving the remedial activities, instead of simply allowing them to occur and then evaluating their effectiveness.

For all of the above reasons, Asarco urges that the metals TMDL be deferred. Should DEQ not defer the metals TMDL, then DEQ should make the metals TMDL a phased TMDL in which the first phase will be to focus on the remedial actions and the gathering of more and better data to assess the effects of those actions. The first phase should not identify specific WLAs, but should stress that the data gathered in the first phase will be used to determine whether or not site specific criteria development is needed. Only after such evaluation, and after site specific criteria development should a second phase metals TMDL be considered.

The crux of these recommendations is that much better information is needed before the metals TMDL should advance to establishing WLAs for point sources. Part of Asarco's concern is because of the inherent inaccuracy in the present draft, and part is because EPA writes the permits to implement WLAs. EPA has shown elsewhere in Idaho that they will implement WLAs in absolute fashion, with short compliance times, regardless of DEQ's stated intentions. The metals TMDL actually acknowledges the scarcity of data and the need to revise the metals TMDL in the future as more exact measurements are developed. That provides little comfort as EPA implements the published WLAs. The scarcity of data also provides little comfort if the metals TMDL is treated as an ARAR driving the remedial activities in the subbasin.

Asarco questions DEQ's authority under state law to prepare TMDLs for water bodies that are dominated by nonpoint sources. Asarco also notes that under state law, TMDL development must be conducted through rulemaking.

Asarco notes that new data collected by McCulley, Frick and Gillman¹ shows that within Tributary Creek, hardness associated with both the point and nonpoint sources is significant and the metals TMDL will need to factor in hardness. (See comment II.C.6) Asarco also notes that site-specific criteria development in the South Fork of the Cocur d'Alene River provides strong evidence that it is inappropriate to use existing state metals standards for a metals TMDL in the North Fork of the Cocur d'Alene River. Similar changes are likely to result from any site specific criteria development in the North Fork.

Asarco notes that the draft metals TMDL includes a number of faulty assumptions or calculations. These include 1) indecipherable means of defining the discrete discharges of metals, 2) inappropriate comparisons of a very small adit discharge from

¹ McCulley, Frick and Gillman, (release date in February, 2001) Draft Field Sampling and Data Report.

the Jack Waite mine to a very large adit discharge from the Gem mine, and 3) establishment of waste load allocations that decrease as the creek flow increases.

Asarco notes that the flow tier system provides a substantial margin of safety that DEQ has not discussed, and that the 10% margin of safety imposed by DEQ is not needed. Asarco questions the imposition of a metals TMDL when it is not yet known whether the source reductions will be technically or economically feasible.

Asarco concludes that DEQ should defer promulgation of the metals TMDL. In the event that DEQ does not defer the metals TMDL, then DEQ should instead develop a phased metals TMDL where the first phase does not include defining specific WLAs and the second phase remains to be determined after evaluation of the effects of actions under the first phase. Asarco believes that the phased approach is compatible with DEQ's stated intentions for implementation.

- II. GENERAL AND SPECIFIC COMMENTS
- A. Deferral or phasing of the metals TMDL
- 1. DEQ should defer the metals TMDL until completion of the CERCLA initiated removal actions.

Idaho does not have unlimited resources, so it needs to ensure that those resources are spent wisely. The order of the federal district court for the State of Washington in Idaho Sportsmen's Coalition v. Browner, C93-943-WD (W.D. Wash.), allows the State to reorder its development of TMDLs. The order states,

The sequencing of TMDL development in Idaho's schedule may change as additional information becomes available concerning impacts or potential impacts to beneficial uses within particular subbasins, as resources become available to complete development on TMDLs on a particular subbasin, or as priorities and activities of other state and federal agencies change.

Schedule to Stipulation and Proposed Order on Schedule Required by Court, <u>Idaho</u>
<u>Sportsmen's Coalition v. Browner</u>, at 5 n.1 C93-943WD (W.D. Wash. Apr. 9, 1997).

Under the court's order in <u>Idaho Sportsmen's Coalition v. Browner</u>, the State of Idaho has the authority to revise the schedule and order for developing and implementing TMDLs on Section 303(d) listed waters. DEQ should exercise this discretionary authority and defer developing a metals TMDL for the East Fork Eagle Creek and other waters in the North Fork Coeur d'Alene River until the nonpoint sources are addressed initially through CERCLA mechanisms and removal actions are completed. Only then will there be data sufficient to show that the condition requiring a TMDL persists. The sediment TMDL portion of the SBA can stand alone, without the metals TMDL.

2. If DEQ does not defer the metals TMDL then it should specifically phase the metals TMDL

As the metals TMDL implementation is described in the SBA, it appears that DEQ does intend to use a phased approach:

"....Both point and nonpoint sources would be addressed initially through CERCLA mechanisms. Point sources would be addressed with remedial studies and where necessary consent decrees between EPA and the responsible parties. After the consent decree remedy had defined the practical level of treatment and that treatment was installed, the NPDES program will issue permits for these sources. Nonpoint sources will be addressed through removal actions sponsored by the state, EPA or the federal land management agencies, BLM and USFS. A removal action is currently under consideration by the Forest Service at the Paragon Mill site."

(SBA at Section 3.2.13)

The above wording implies that DEQ will implement the metals TMDL in phases. Although Asarco generally agrees with the intent of this section, Asarco believes that a deferral of the metals TMDL is still necessary. If DEQ does not defer the metals TMDL then the phasing of the metals TMDL must be described in more detail and steps taken to assure that EPA does not override it and prematurely implement the Waste Load Allocations (WLAs) in permits. Specific WLAs should not even be defined in the first phase of the metals TMDL and the metals TMDL should only present the first phase at this time.

Asarco makes this request for the following reasons. DEQ cannot know how much load reduction from point sources will be necessary until DEQ understands the amount of load reduction that can be achieved through cleanup of non-point sources. DEQ cannot at this time predict what a "practical level of treatment" will be for point sources such as the adit from the Jack Waite mine. DEQ cannot at this time evaluate how possible site-specific criteria development might change the metals TMDL. Defining specific WLAs for point sources at this time could "lock in" permit requirements that later would prove to be unnecessary and/or unfounded.

In spite of DEQ's stated intentions to only impose a practical level of treatment, there is no assurance that the NPDES permit writers will adhere to such an approach. Idaho is not a NPDES delegated state. EPA Region X, not DEQ, writes the NPDES permits. Recent experience has shown that EPA permit writers will impose water quality based effluent limits ("WQBELs") in NPDES permits to meet waste load allocations that are specified in a TMDL. The metals TMDL in the SBA define specific waste load allocations and EPA permit writers will impose the WLA based limits from the metals

TMDL. EPA permit writers' interpretations of the metals TMDL may well require that WLA based limits beyond the "practical level of treatment" envisioned in the metals TMDL be met within the five year time span covered by an NPDES permit, regardless of DEQ's intentions.²

It makes no sense to impose overly stringent load reductions on the types of point sources in the SBA when the possibility exists that the cleanup of non-point sources will obviate the need for such stringent point source load reductions. Similarly it makes no sense to impose such reductions when site-specific criteria development may reduce the amount of reductions required.

As an alternative, DEQ may strongly state that this is a phased metals TMDL emphasizing remedial actions and evaluation in the first phase. DEQ may state that the second phase of the metals TMDL will be developed later based on evaluation of the effects of the actions taken in the first phase and new data. Specific WLAs for point sources should not be included in the first phase, but may be in the second phase if necessary.

3. DEQ should defer or phase the metals TMDL to allow development and use of site-specific water quality criteria

The comments pertaining to site-specific water quality criteria development provided by Asarco regarding the SFCDR TMDL³ are relevant to the SBA⁴. The terrain and the water in Tributary Creek and the East Fork of Eagle Creek are similar to the area for which site-specific criteria are being developed in the South Fork of the Coeur d'Alene River.

² In implementing a TMDL prepared by DEQ for Paradise Creek, EPA imposed a point source WLA based limit for phosphorous on the City of Moscow with the requirement that they be met within the 5 year span of the permit, even though DEQ provided EPA with a 401 certification that called for a step-wise approach and a longer compliance schedule. In response to comments EPA said they were required to impose the TMDL based limits and they could not go beyond the 5 year term of the NPDES permit to achieve the limits.

³ See Comment II.A.2 in Asarco's comments on the SFCDR TMDL dated August 13, 1999. DEQ has a copy of those comments.

⁴ On motion of the government, the North Fork Coeur d'Alene River has been excluded from the Coeur d'Alene lawsuit involving the U.S. Government claim for natural resource damages and response costs.

It makes no sense to impose stringent load reductions on point sources when elsewhere in a similar basin, the development of site-specific water quality standards for metals provide a strong likelihood that site-specific standards within the North Fork Coeur d'Alene River and/or its tributaries would result in a less stringent requirement.

4. DEQ should defer or phase the metals TMDL to allow development of sufficient site-specific data

Inadequacies of the site-specific data are described in the comments under the heading of II.D, (below). Essentially,

- There are inadequate data to characterize adits and non-point sources and it is not appropriate to compare adits in the SBA with the Gem adit because the Gem adit flow is several orders of magnitude greater than the Jack Waite adit. (See discussion at II.D.1, below.)
- Site-specific criteria being developed in the South Fork of the Coeur d'Alene
 River will have relevance even if the North Fork is a different water body. The
 ongoing site-specific criteria development in the similar, nearby water body
 provides a strong basis to believe that site-specific criteria should be developed
 within the North Fork as well, before developing a metals TMDL. Site
 specific criteria, when developed, give a different outcome.

B. DEQ Authority

1. Idaho Code § 39-3611 limits controls on point sources

Asarco believes that the statute is clear. It prohibits Idaho from imposing further restrictions through a TMDL unless the point source contribution of the pollutant of concern is more than 25%:

For water bodies where an applicable water quality standard has not been attained due to impacts that occurred prior to 1972, no further restrictions under a total maximum daily load process shall be placed on a point source discharge unless the point source contribution of a pollutant exceeds twenty-five percent (25%) of the total load for that pollutant.

- I.C. §È39-3611. The non-attainment status of the East Fork of Eagle Creek and other affected tributaries in the North Coeur d'Alene River sub-basin pre-dates 1972 and the point source contributions are less than 25%; therefore, DEQ cannot write a TMDL and impose additional restrictions on point sources. DEQ must follow Idaho state law.
- 2. The State of Idaho and Idaho DEQ are required to conduct rulemaking under the Idaho APA in order to promulgate TMDLs

The requirements of Idaho law regarding promulgation of TMDLs by the Idaho DEQ are quite clear. I.C. § 39-3612 states:

Integration of total maximum daily load processes with other programs.—Upon completion of total maximum daily load processes as set forth in section 39.3611, Idaho Code, the director shall, subject to the provisions of chapter 52, title 67, Idaho Code, adopt such processes as part of the state's water quality management plan developed pursuant to the federal clean water act. Upon such adoption, the provisions of these processes shall be enforced through normal enforcement practices of designated agencies as set forth in the state's waster quality management plan. [I.C., § 39-3612, as added by 1995, ch. 352, § 1, p. 1165.]

The statute is plain on its face that the TMDL processes provided for in IC § 39-3611 must be "adopted" pursuant to the Idaho APA. A complete discussion of this issue is contained in briefing supporting a challenge to the IDEQ/EPA promulgation of the TMDL for listed stream segments in the Coeur d'Alene basin on August 14, 2000. That briefing is available to IDEQ.

C. Loading Allocation

1. There should be a greater emphasis that this is a phased TMDL.

The North Fork of the Coeur d'Alene River is clearly a situation where it is most appropriate to have no metals TMDL or to develop a phased metals TMDL. A phased TMDL is appropriate when there is much uncertainty. A phased metals TMDL would focus on CERCLA mechanisms, particularly removal actions that will first address the non-point loadings. To the extent that CERCLA actions lead to reasonable or feasible actions on some point sources, such actions may also occur in the first phase. However, the first phase of the TMDL should not be the regulatory mechanism to impose requirements for point source controls.

The phased approach allows the development of additional data to better document the conditions as they improve and also allows time for the development of site-specific metals standards if that appears necessary. A phased metals TMDL should emphasize that as removal actions occur and new data become available that the data will be reviewed to evaluate trends, and the possible need for any additional actions. Additional actions, including specifying any WLAs for point sources would be developed, if needed, in the second phase of the metals TMDL. The first phase of the metals TMDL should not derive specific metals WLAs because data are insufficient and because EPA permit writers will implement WLAs within a single 5 year permit cycle, contrary to DEQ's intent.

Note that these recommendations appear to agree with section 3.2.13 of the SBA. See Asarco comment II.A.2 for additional discussion.

2. The calculation of Discrete Discharges of Metals is indecipherable and erroneous.

Section 2.3.2.2.1.5 of the SBA states that

"[t]he point discharges of metals cadmium, lead and zinc are listed in Table 8. Based on estimates discharge weighted for seasonal flow (Appendix A), the daily load of each source is calculated."

The wording is unclear.

The same section says that the discharge patterns of these adits are assumed to be similar to that of the Gem adit. Details on the Gem adit discharges are included in Appendix A of the SBA. There is only one flow observation of 0.091 cfs for the Jack Waite adit presented in the SBA Appendix A and it is three orders of magnitude lower than the Gem adit. Additional data obtained by McCulley, Frick and Gilman include observations of adit flow of 0.129 and 0.19 cfs in the fall and 1.8 cfs in the Spring, indicating an order of magnitude seasonal range, a much greater percent change between seasons than exists for the Gem adit. The Gem adit should not be used for any purposes of estimation for the Jack Waite adit.

Section 2.3.2.2.1.5 includes Table 8 showing discrete metals discharges for various point sources (including the Jack Waite adit) and also includes tables showing the contributions of those sources to the various creeks under the different flow tiers. The SBA apparently used mean metal concentrations for the creek for flow tiers and a single value for the Jack Waite adit (perhaps adjusted somehow by variability with the Gem adit data) in order to compute percentages attributable to the Jack Waite adit. The method appears to lead to illogical results, as explained below (see Comment II.C.3 below). The methodology is not well illustrated, not documented and appears to result in inappropriate

⁵ Note that it is not at all evident in the SBA or its Appendix A as to just how this assumption of comparability to the Gem adit is used. There really is no basis for comparison, but nevertheless, the Gem adit flow data show a certain variability. For Jack Waite there is only a single observation of flow. No information is provided as to whether that flow is made to vary like the flow from Gem adit, or vary in any other way for purposes of the calculations.

conclusions. Asarco can identify these errors but due to the data limitations Asarco finds that it is not possible to identify what the corrections should be. The SBA needs much more data and analyses. Clearly the metals TMDL is premature and based on inadequate data.

3. The waste load allocations should not decrease as creek flows increase.

Section 3.2.11 of the SBA provides the following waste load allocation for the Jack Waite Adit.

	7Q10-10%	10%-50%	50%-60%	>90%
Cd (lb/da)	0.006	0.003	0.001	0.001
Pb (lb/da)	0.0004	0.0001	0.00006	0.00007
Zn (lb/da)	0.231	0.147	0.085	0.088

These waste load allocations actually decrease as the creek flow increases. Such an approach appears to be illogical because the assimilative capacity of the creek increases with flow. This is probably the result of the combination of inappropriate methods used in the metals TMDL, including trying to compare adits in the SBA to the Gem adit and making judgements based on an inadequate data base (one adit measurement in the case of Jack Waite). Without a more detailed explanation of how these calculations were performed, it is not possible for the public to accurately assess the validity of the methods or the results.

The above waste load allocation is in pounds per day. Using the assumptions of from the metals TMDL, the mass loads equate to the following concentration limits.

	7Q10-10%	10%-50%	50%-60%	>90%
Cd (ug/l)	12.28	6.14	2.05	2.05
Pb (ug/l)	0.82	0.20	0.12	0.14
Zn (ug/l)	472.6	300.75	173.90	180.04

As with the pounds per day allocation, the concentration equivalents show limits that decrease with increasing stream flow. This makes no sense. As noted earlier, the Jack Waite adit is a significant contributor of hardness to Tributary Creek. Two hardness observations of the adit discharge were obtained by McCulley, Frick and Gilman in low flow conditions and these were 318 and 378 mg/l. McCulley, Frick and Gilman obtained one hardness observation of 147 mg/l in high flow conditions. Some of the above limits are set lower than the water quality standards for the adit's hardness. This is unnecessary.

4. Lead should be deleted from the TMDL for the East Fork of Eagle Creek.

Within the East Fork of Eagle Creek lead could be deleted from the metals TMDL. Measures implemented to address zinc will achieve improvements for lead as well. As such, zinc would be a surrogate for lead. The lead data include non-detect values. DEQ in turn used half the detection limit in their evaluations. The lead data for the East Fork of Eagle Creek considered dissolved values, but the description of the loadings from the limited point source data used total. Table 9(b) in section 2.3.2.2.1.5 of the SBA illustrate a trivial percent contribution of lead from the point discharge to the East Fork of Eagle Creek.

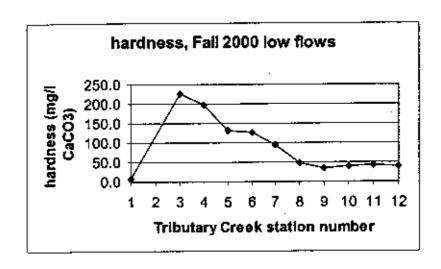
5. Dissolved to Total Recoverable metals ratios should be incorporated into the metals TMDL.

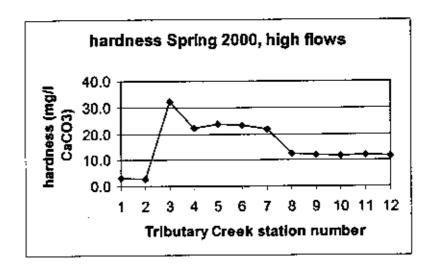
Data collected by McCulley, Frick and Gilman for Tributary Creek illustrate that there are differences between the dissolved and total recoverable metals. The metals TMDL should evaluate and utilize appropriate ratios, specific to the different flow tiers, and possibly even specific to the location and gradient in the basin. Hence, additional data will still need to be collected before a final metals TMDL should be developed, in order to implement metals standards consistent with their dissolved basis. Note that this is one manner of making an easy site-specific adjustment to the water quality standards. Other methods should also be considered.

6. Within Tributary Creek the hardness from adit and seep flows add to the loading capacity

The metals TMDL in the SBA fails to consider the hardness of drainage from adits or seeps. Although the hardness for the East Fork of Eagle Creek does appear to be consistently below 25 mg/l, the same is not true for Tributary Creek nor the adit or seep drainages to Tributary Creek.

As was recognized in Washington State's Spokane River TMDL and incorporated into the SFCDA TMDL (for some but not all point sources), the hardness contribution from a discharge is a beneficial factor to consider when evaluating assimilative capacity and the effects of a source. Because of hardness added to Tributary Creek, the hardness assumptions used in the SBA are not applicable within Tributary Creek. The TMDL needs to recognize this difference. McCulley, Frick and Gilman has collected hardness data for Tributary Creek for the Fall of 1999, the Spring of 2000 and the Fall of 2000. These data will be provided to DEQ in February in a Draft Field Sampling and Data Report. The following figures illustrate the hardness differences for the Spring and Fall of 2000 for Tributary Creek. Station 1 is in the headwaters upstream of the Jack Waite adit. Station 12 is near the mouth just before the Creek joins the East Fork of Eagle Creek. Upstream of the Jack Waite adit the water in Tributary Creek is soft regardless of the flow. The Jack Waite adit is a very significant source of hardness to Tributary Creek.





7. Within Tributary Creek there is an inverse relationship between flow and hardness

The inverse relationship results from the fact that ground water or adit and seep flows contribute different percentages of the total stream flow during low flow times than high flow times. It is also noteworthy that upstream from the Jack Waite adit, the stream has very low hardness regardless of high or low flow. The inverse relationship between hardness and flow for Tributary Creek as well as the low hardness upstream of the adit are evident in the above figures.

D. Adequacy of Technical Information

The SBA acknowledges the scarcity of data.

"Data from which the problem assessment and TMDL for the North Fork Coeur d'Alene sub-basin were developed are few in number. As more exact measurements are developed during implementation plan development or subsequent to its development these will be added to a revised TMDL as required."

(SBA Section 3.2.14)

This admission applies to stream flow characterization, adit characterization, hardness characterization, and the likelihood that site-specific criteria could be developed that would be significantly different.

Such an acknowledgment further supports the need to not adopt a metals TMDL at this time or to use a phased metals TMDL with no WLAs determined in the first phase. The material presented in the SBA will be useful as a starting point for evaluating water quality after remedial actions have been implemented and data collected to evaluate their effectiveness. At that point, the necessity of a metals TMDL can be re-evaluated and one may be developed based on a much more adequate data base.

The TMDL's assessment of point sources is inadequate

For example, a single data point was all that was available for the Jack Waite adit. The same is true for many of the other adits. Somehow that was then compared to more data points for metals in the East Fork of Eagle Creek and different flows and was a factor in the derivation of point source waste load allocations that decrease as the stream flows increase. The inadequate data contributes to an illogical allocation.

Biological monitoring can be used to establish ecological goals for the Basin.

Asarco supports the use of biological assessment as the means for evaluating the improvements in the sediment TMDL. The same methods implemented under the sediment TMDL will prove useful if incorporated into a phased metals TMDL. Site-specific criteria development may also relate to biological evaluations. In some tributaries with waterfalls that block fish passage, biological assessments might determine that fish can not even get there and this has relevance to site-specific criteria.

3. Site-specific metals criteria will result in a technically superior TMDL.

Based on the ongoing development of site-specific criteria in the South Fork Coeur d'Alene system, site specific criteria development for zinc and lead are likely to

produce higher site specific metals criteria within the SBA. Site-specific criteria will be more relevant and are critical to any metals TMDL.

E. Margin of Safety

1. By using the EPA developed metals criteria, DEQ already has sufficient margin of safety.

The development of site-specific criteria in the South Fork of the Coeur d'Alene River illustrate that some of EPA's criteria are more stringent than necessary and therefore provide a sizeable, unaccounted for margin of safety. No margin of safety is needed in the metals TMDL when using EPA's criteria. A margin of safety might be needed when using site-specific criteria. The margin of safety inherent in the flow tier methodology is more than sufficient.

2. The flow tier approach provides a margin of safety not acknowledged in the TMDL.

While it is more appropriate to use flow tiers than to simply establish a single allocation for a worst case flow, it is important to realize that whenever flow tiers are limited in number (as opposed to having separate TMDL allocations for each and every flow), then a significant margin of safety evolves. This margin of safety is associated with the range of flows incorporated into each tier. Essentially, the allocations for each tier are based on the loading capacity for the bottom flow value in each tier. Without any other margin of safety applied, this would mean that there is no margin of safety only when the flow was exactly equal to the bottom flow in the range, and there is a very substantial margin of safety when the flow was just below the flow that marks the top of the range. For example, when the flow in the East Fork of Eagle Creek is 21 cfs, it is more than twice the 10th percentile flow of 10.4 cfs and the Creek could accept twice the allowed loading and still meet the standards. When the flow is 100 cfs the Creek could accept four times the loading for the 50th percentile flow and still meet the standards. The margin of safety inherent in the flow tiering is quite extreme and there is no need for additional margins of safety. If the metals TMDL retains the 10% margin of safety, then additional flow tiers should be included to reduce the excessive margin of safety with the present tiers.

F. Technical and Economic Feasibility

1. DEQ should not impose a metals TMDL without knowing whether the source reductions will be technically or economically feasible.

Asarco recognizes that Section 3.2.13 considers that practical levels of treatment would be defined and installed for point sources. "Practical" actually implies some determination of technical or economical feasibility. However DEQ has no idea what these requirements will be, nor whether such undefined "practical" levels of treatment

will be able to meet water quality based limits implicit in any TMDL assigned waste load allocations. Asarco is concerned that once waste load allocations are described, EPA may view them as water quality based effluent limits to be imposed regardless of technical or economic feasibility.

G. Editorial Corrections

Table of Contents Appendix A. spelling error

Second paragraph in section 2.2.1. remove "(" before "303(d)". A citation to IDEQ 1996b is made but no such document is listed in the references.

<u>Figures 1 and 4.</u> These figures should identify the compliance points that form the basis of the TMDL. From the text it isn't clear.

Third paragraph in section 2.2.3. Change "criterium" to "criterion" or "criteria"

Second paragraph in section 2.3.1. A citation to DEQ 1999a is made but no such document is listed in the references.

First paragraph in section 2.3.2.2.1.2. Change "90thb" to "90th"

<u>First paragraph and Table 7 in section 2.3.2.2.1.4.</u> It represents that the data cover four flow tiers. However, it actually covers five tiers since some of the data were for flows that were less than the 7Q10. Table 7 has some computational errors as well for Eagle Creek. The footnote to Table 7 needs a space between "lead" and "and".

First paragraph in section 2.3.2.2.1.5. The first sentence makes no sense.

<u>Tables 14a, 14b, 14c, 14d and 14e in section 2.3.2.5.1.</u> These tables include rows for projected CWE scores and calculated CWE scores. All the values presented are identical, which makes no sense.

The first table in Appendix A. This table is not suitable for inclusion in the assessment. The contents of some fields exceeded the size and consequently were replaced by Excel with "#####". The data in the table include some metals concentrations that are negative, with no explanation. Column headings do not carry over to all pages, making it very difficult to read.

Section 3.2.11.1. This section refers to Beaver Creek when it should refer to East Fork of Eagle Creek. The WLA values for cadmium and lead for the 90th percentile flow in Table 9 are incorrect based on the methods used in the TMDL. The WLA values also make no sense (as a result of the method used) because they decrease as the stream flow increases. (Similar concerns exist for the metals TMDLs for the other creeks.)

Section 3.2.12.2. The word "associates" should be "associated".

CONCLUSION

For the reasons set forth in these comments, DEQ should defer promulgation of the metals TMDL for the East Fork of Eagle Creek and possibly the other tributaries within the North Fork of the Couer d'Alene River basin.

If DEQ proceeds with the metals TMDL notwithstanding all of the compelling reasons for deferral, DEQ should clearly state that the metals TMDL will be a phased one, and the first phase should not identify any waste load allocations for point sources. Phase one will address both point and nonpoint sources only through CERCLA mechanisms emphasizing primarily removal actions for the nonpoint sources. Point sources would only be addressed through CERCLA mechanisms in phase one if a practical level of treatment is determined. Phase one will also include requirements to obtain more data and to evaluate changes resulting from the phase one actions. The evaluations during and following completion of the removal actions will help to determine if site-specific criteria need to be developed and ultimately will fill the gaps in understanding necessary to develop the second phase of the metals TMDL.

Either deferral of the metals TMDL or explicitly phasing of the metals TMDL is necessary in order to prevent a premature application of waste load allocations to point sources. Possibly the remedial actions to correct nonpoint source contributions, site-specific criteria development and some practical level of treatment for point sources will individually or in combination be sufficient to restore the affected creeks in the North Fork of the Coeur d'Alene River. Time is needed to implement these and assess their effects.

164570 v02.SE (3\$z#021.DOC) 1/22/01 2:23 PM (16004.0104) ASARCO c/o Timothy Butler Heller Ehrman 701 Fifth Avenue Suite 6100 Seattle WA 98104-7098

Dr. Mr. Butler:

Thank you for the comment provided by ASARCO on the North Fork Coeur d'Alene River Sub-basin Assessment and Total Maximum Daily Loads (TMDLs). A considerable amount of comment was received on these documents. Comments raising legal issues comprised some of this comment. Response to the comment and revision of the Sub-basin Assessment and the TMDLs has taken some time since the close of comment on January 22, 2001.

The comments made by ASARCO as we understood them and our responses follow. If a revision was made to the documents this is noted. A responsiveness summary of all the comment will be submitted with the assessment and TMDLs. If you wish to review the comments of others and our response and actions taken, this document should be consulted.

Comment 1: DEQ should defer the metals TMDL until completion of the CERCLA initiated removal actions.

Response 1: The TMDL process is related to but independent of the CERCLA process. Its relationship is that it develops the water quality applicable or relevant and appropriate regulatory requirements (ARARs) for the site more fully by translating the water quality standards into daily permissible loads dependent on the season. The situation in the East Fork Eagle Creek is straightforward. The Jack Waite adit is the only discrete source while the Jack Waite mill complex, tailings ponds and tailings washed downstream are the nonpoint sources. Since the TMDL provides a plan to respond to meet water quality standards it is appropriate that the East Fork Eagle Creek TMDL proceeds any CERCLA consent decrees.

Comment 2: If DEQ does not defer the TMDL then it should specifically phase the metals TMDL. Concern is stated that EPA will override the phasing of the TMDL implementation.

Response 2: The term phasing is not defined, however, EPA does not accept the phasing of TMDLs. This fact stated; TMDLs can be renewed and incorporate new data at any time. Should there be a shift in metals standards for the water body, or important new data became available a new TMDL would be required to reflect this new data. Although not phasing, this is renewal.

Comment 3: DEQ should defer or phase the metals TMDL to allow development and use of site-specific water quality criteria.

Response 3: Site specific criteria for lead and zinc have been developed for the reach of the South Fork Coeur d'Alene River above Wallace. Work has been completed to extend these results to the metals contaminated segments of the South Fork Watershed below Wallace. A justification of this is in preparation. No plans have been developed to do the studies necessary to extend these results to the Beaver and Prichard Creek watersheds. Such work if undertaken may extend well past 2003 the due date of these

ASARCO c/o Timothy Butler May 23, 2001 Page 2.

TMDLs. When and if the site specific standards were extended to the Prichard Creek watershed the current TMDLs would be revised to reflect the current (new) metals standards.

Comment 4: DEQ should defer or phase the metals TMDL to allow development of sufficient site specific data.

Response 4: See response to ASARCO, comment 3.

Comment 5: Idaho code section 39:3611 limits controls on point discharges.

Response 5: The limitations on point source controls in 39-3611 are not applicable under either state or federal law to this TMDL for the following reasons: Idaho code section 39-3611 limits controls on point source discharges when these are less than 25% of the metals loads. The sub-basin assessment (SBA) on page 16 clearly demonstrates that the single point discharge (Jack Waite Adit) is 50% of the cadmium under 7Q10 discharge conditions. In addition, 39-3611 applies to water bodies where the applicable water quality standard has not been met due to impacts that occurred prior to 1972. While there were significant impacts to the NFCDA river that occurred prior to 1972, there are also continuing and post-1972 discharges that have contributed and continue to contribute to the non-attainment of state water quality standards. Moreover, under both state and federal law, the TMDL must meet requirements of the Clean Water Act. See Idaho Code sections 39-3601 ("It is the intent of the legislature that the state of Idaho fully meet the goals and requirements of the federal clean water act.."); 39-3611 ("For water bodies described in section 39-3609, Idaho Code, the director shall...as required by the federal clean water act, develop a total maximum daily load..."). A TMDL that does not call for point source reductions would not meet the requirements of the Clean Water Act because the TMDL could not assure compliance with state water quality standards.

Comment 6: The State of Idaho and Idaho DEQ are required to conduct rulemaking under the Idaho APA in order to promulgate TMDLs.

Response 6: TMDLs are plans for the restoration of water bodies to the level of the water quality standards. Idaho Code section 39-3602 ("Total maximum daily load (TMDL) means a plan for a water body not fully supporting designated beneficial uses...") TMDLs do not have the force and effect of law and are not required to follow the APA rule-making process.

Idaho Code section 39-3611 addresses the development of TMDLs and requires TMDLs be developed in accordance with those sections of law that provide for involvement of BAGs and WAGs, and as required by the federal Clean Water Act. There is no requirement in this section that the TMDL be developed as a rule.

Idaho Code section 39-3612, on the other hand, addresses the integration of TMDLs, once completed, with other water quality related programs and provides that this integration is subject to the provisions of the Idaho Administrative Procedures Act. Thus, to the extent required by the IDAPA, DEQ, and other designated agencies, must follow the IDAPA provisions when TMDLs are implemented and enforced under applicable state programs.

Given the scope of the TMDL program and requirements of the court-approved schedule for development of TMDLs, it is clear the IDAPA rulemaking provisions are not applicable. The schedule for development of TMDLs in Idaho is the product of federal court litigation. According to the TMDL schedule, from 1997 to 1999, DEQ was to develop 529 TMDLs. Under the IDAPA, rules must be approved by the legislature before they become effective. Because of this and other rulemaking requirements, rules typically take almost a year to promulgate. Idaho Code section 39-3601 et seq was enacted in response to this federal

ASARCO c/o Timothy Butler May 23, 2001 Page 3.

TMDL litigation and the legislature certainly never intended DEQ to attempt to promulgate hundreds of required TMDLs as rules.

The federal APA does not require EPA adopt TMDLs as rules. Moreover, given the short deadlines in section 303d of the CWA, including the requirement that TMDLs be developed within 30 days of EPA disapproval of a state TMDL, the CWA clearly does not envision or require TMDLs be developed as rules.

Comment 7: There should be greater emphasis that this is a phased TMDL.

Response 7: See response to ASARCO comment 2. The TMDL is not phased and would not be approved by EPA as a phased TMDL. However, any TMDL is open to revision based on new information.

Comment 8: The calculation of discrete discharges of metals is indecipherable and erroneous.

Response 8: The calculation is difficult to follow. This was remedied in the revised SBA in the text and in Appendix A. We respectfully disagree that it is erroneous. The calculation of the adit discharge of metals was made more understandable in the text and Appendix A.

Comment 9: The waste load allocations should not decrease as creek flows increase. Hardness data provided.

Response 9: The waste load allocations decrease because the percentage of the load that is attributable to discrete discharges decreases as the discharge increases. This is a major difference between the Coeur d'Alene basin Metals TMDL and these North Fork metals TMDLs. The Coeur d'Alene Basin document gave the discrete sources a 25% allocation based on the mixing rule in the Idaho Water Quality Standards and Wastewater Treatment requirements. The North Fork TMDL calculates the discrete load based on adit discharges and synthetic hydrographs based on the Gem Adit discharge. The percentage discrete load is calculated by dividing the discrete load by the measured load at each flow tier.

The hardness data provided clearly indicates that the adit adds hardness to the stream. This hardness effect is diluted even in Tributary Creek and likely is very small at the point of compliance near the mouth of the East Fork Eagle Creek. The metals are detected at the point of compliance in the loads measured and at hardness levels all below 25mg calcium carbonate. Thus the hardness data is not applicable to the point of compliance.

Comment 10: Lead should be deleted from the TMDL for the East Fork Eagle Creek. Use of one-half detection for non-detection increases a load that is trivial.

Response 10: It is standard method to consider non-detection as one half of detection. However, we agree this approach may create a lead load where arguably none exits. The database was searched for detection of lead above the state standards. Exceedence occurred in eleven of thirteen samples. Use of one-half detection in the two cases is warranted.

Comment 11: Dissolved to total recoverable metals ratios should be incorporated into the metals TMDL.

Response 11: The state standards state the cadmium, lead and zinc standards in terms of dissolved cadmium, lead and zinc. These ratios are important translators for point discharges since these permits are based on total recoverable levels. The database is not sufficient to develop such translators where they are appropriate at the adit discharge. These will be developed as the adit discharge is better characterized in the CERCLA consent decree and NPDES programs that will implement the TMDL.

Comment 12: Within Tributary Creek the hardness from adit and seep flows add to the loading capacity.

ASARCO c/o Timothy Butler May 23, 2001 Page 4.

Response 12: See response to part 2 of ASARCO comment 9. The hardness from the adit and seeps discharged to Tributary Creek is not detectable at the point of compliance, while the metals are. The hardness must be diluted from the stream system.

Comment 13: The TMDL's assessment of point sources is inadequate.

Response 13: The assessment of the adit discharges is based on the database developed for the EPA remedial investigation. These were developed originally by the Idaho Geologic Survey (University of Idaho) for the US Forest Service. At the time its was the best available data. Additional data on the discharge and metals characterization of the Jack Waite Adit was supplied to DEQ by ASARCO's consultants. It was incorporated into the SBA and East Fork Eagle TMDL.

Comment 14: Biological monitoring can be used to establish ecological goals for the basin.

Response 14: Biological goals are appropriate for pollutants as sediment. In these cases narrative standards govern the amount of sediment and these standards are tied directly to the full support of the beneficial use. Metals are governed by numeric standards that assume full support of the beneficial use. In the case of metals the numeric standards must be attained.

Comment 15: Site specific metals criteria will result in a technically superior TMDL.

Response 15: This may or may not be true. However, at this time and for the foreseeable future (next two years) the current state metals standards are expected to be the governing standards.

Comment 16: By using the EPA developed metals criteria, DEQ already has sufficient margin of safety.

Response 16: Although conservative, the metals standards are not deemed by DEQ or EPA to eligible as a component of a TMDL's margin of safety.

Comment 17: The flow tier approach provides a margin of safety not acknowledged in the TMDL.

Response 17: The flow tier approach accounts for the seasonal stream discharge and is not a margin of safety factor.

Comment 18: DEQ should not impose metals TMDLs without knowing whether the source reductions will be technically or economically feasible.

Response 18: TMDLs are required by federal law and in Idaho's case a court order. These planning documents must be developed and issued by DEQ and EPA to meet the agencies' legal responsibilities. Should the source reductions not be technically or economically feasible, such that the TMDL cannot be met, the Clean Water Act contains mechanisms such as use attainability and standards changes to address such situations should these arise.

ASARCO c/o Timothy Butler May 23, 2001 Page 5.

Thank you for the comments that were developed on the North Fork Coeur d'Alene River Sub-basin Assessment and TMDLs. If you have questions concerning our responses or the actions taken, please contact me at 208-769-1422.

Sincerely,

Geoffrey W. Harvey Watershed Coordinator